AMERICAN SAND FLIES
(Diptera: Psychodidae, Phlebotominae)

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Introduction

This work attempts to provide an introduction to American Phlebotominae (Diptera: Psychodidae).

In the scheme of classification which we present here, we attempt to combine the systems of Theodor (1965) and Young & Fairchild (1974) with the earlier proposals of Barretto (1961*a* & *b*, 1962). The resultant classification system has been used, for several years, in classes for postgraduate students in the Department of Parasitology, Federal University of Minas Gerais. The system has been modified over the years as a result of students' comments and criticisms; in the form now presented, it has been found to be a satisfactory scheme for introducing students to the morphological diversity of New World sand flies. Our classification system differs considerably from that of Forattini (1971, 1973). Throughout the present work, we refer to Forattini (1971, 1973) whenever his use of generic, subgeneric or specific names differs from ours.

The only published catalogue of American Phlebotominae (Barretto, 1947) covered literature up to the end of 1945. Only about half of the species which can now be accepted as valid were described before the beginning of 1946 and, with the passage of 30 years, the catalogue of Barretto (1947) is outdated. The nomenclature of Barretto (1947) has been superceded (mainly as a result of works by Barretto, 1961*a* & *b*, 1962) and some of the taxonomic judgements implied in the catalogue have since been questioned or shown to be erroneous. Barretto's catalogue remains, however, the best critical review of the 40 years following the description of the first two American species of sand flies (Coquillett, 1907). Barretto's catalogue is also an source of information for early publications dealing with Old World Phlebotominae.

In the catalogue of Barretto (1947), 157 species – not all of them being accepted as valid today – were listed and reference was made to 219 publications. Thirty years later, about 300 New World Phlebotomine species can be accepted as valid and there are about 1,000 publications (excluding text-books) which refer to American sand flies by specific names. The need for an up-to-date catalogue of the Phlebotominae of the Americas has long been appreciated by all students of sand flies. Unfortunately, a catalogue prepared in 1971 by Professor O. Theodor (Hebrew University, Jerusalem, Israel) has not yet appeared in print.

For each species which he listed, Barretto (1947) gave complete bibliographies for each species, referring not only to taxonomic works but also to publications dealing with the biology of the flies (in laboratory and field conditions) and with their relationships with human disease. At the present time, a comprehensive bibliography for each species would be more confusing than helpful. Our introductory reference lists cite only publications containing original descriptions and definitions of taxa and the more important redescriptions and redefinitions. Reference is also made to descriptions and redescriptions of forms that have since been placed in synonymy.

In the introductory citations for each taxon, we refer to the pages on which descriptions were given, using a code – M (male), F (female), P (pupa), L (larva), E (egg) – to indicate the form (s) described in the work under reference. The standardized sequence (M, F, P, L, E) may not agree with the sequence in which the different forms were described in the publication cited. An asterisk (*) indicates that one or more illustrations accompanied the description. Diagrams might not have been given on the pages cited but on Plates or unnumbered pages at the end of the work.

Drawings are intended to supplement the definitions of supraspecific categories; they are semi-diagramatic, features of little or no diagnostic value having been omitted. Whenever possible, comparable structures have been drawn at the same magnifications, scale lines being given at the sides of Figs 6-9; variations from these magnifications are indicated by a scale line at the side of the appropriate diagram. Most drawings are original. As far as possible, drawings have been made of specimens of the type species (genera and subgenera) or nominate species (groups and series) represented in the Belo Horizonte reference collection of American sand flies.

Details of distribution of species are based on our own collecting records (marked §) in Brazil, Peru, Venezuela and Belize, and from the published works of other students of American Phlebotominae. To save space, we have refrained from giving references to the publications of other authors; we will willingly provide bibliographical details if requested. The distributional maps are intended to indicate what appear to be the ranges of species. By examination of the distributional lists, it is clear that more collecting is needed before realistic distributional maps can be prepared.

Distributional records are summarized in the form of national check lists. We complete our survey of American Phlebotominae by giving an annotated list of vernacular names used in Latin America.

American Sand Flies: The Historical Background

The name sand fly is used here for the majority of blood feeding Psychodidae. Perfil'ev (1966, English translation 1968) and Lewis (1973, 1974) followed Rohdendorf (1964; quoted by Perfil'ev) by considering the flies sufficiently distinctive to deserve status as the family Phlebotomidae in the superfamily Psychodoidea. We prefer the traditional practice and recognize sand flies as members of the subfamily Phlebotominae, family Psychodidae.

Perfil'ev (1966) gave a detailed review of the history of the methods for studying sand flies, and recognized two periods in which distinctly different methods were used to identify species. Although Perfil'ev was dealing with Old World sand flies, especially with the development of studies on the Phlebotomine fauna of USSR, much of his historical review reflects changes in attitudes by students of American Phlebotominae. The important change in taxonomic studies on sand flies took place in 1926, but 1940 can be taken as the date when the newer methods became generally accepted in the New World.

In the first period, external morphological characteristics were used to identify species. Males could be identified specifically from differences in the external genitalia. Identification of females, and association of sexes of the same species, was based on comparisons of coloration, similarities in the distribution of hairs and scales, and from similarities in wing venation. Association of sexes by these criteria were far from satisfactory and an elaborate system (usually known as "phlebotometry") developed; the methods of phlebotometry were described in detail by França & Parrot (1920). Phlebotometry entailed careful measurement of many parts of the body, (especially of head appendages, of individual segments of head appendages, of wings and of certain veins of the wings) and calculation of ratios between various measurements. It was believed that specific identification of a female could be established when there was close agreement of measurements and ratios (and of the distributions of colour patterns, hairs and scales) with those of males which could be identified specifically from the structure of the genitalia. Not all dipterists of the times accepted the validity of phlebotometry as a mean of associating the sexes and some leading entomologists of the period believed that it was impossible to identify the females of medically important species.

The important change in methods for identifying sand flies resulted from the discovery, by Adler & Theodor (1926), that the structure of the cibarium, pharynx, spermathecae and spermathecal ducts are of value in identifying female sand flies to specific (sometimes subspecific) level. Theodor (1932) demonstrated that the same internal morphological structures are of utility in recognizing females of New World Phlebotominae. It was not until the late 1930s/early 1940s that the new methods for studying sand flies became generally accepted by students of American Phlebotominae. The studies of several Brazilian entomologists (especially those of O. Mangabeira Filho and M. P. Barretto) were of considerable importance in changing concepts for the recognition of American sand flies.

The first two species of New World Phlebotominae were described by Coquillett (1907). By 1940, 33 species (still accepted as valid) had been described. With the adoption of the modern methods for identifying females, 124 species (still accepted as valid) were described between 1940 and 1945. Since the beginning of 1946, new species have been described from the Americas at an average rate of 8-9 species each year. By the end of 1975, about 300 valid species were known from the New World and there is, as yet, no indication of a decline in the rate of discovery of new species. By the wider use of more modern collecting methods and by exploration of environments remote from human settlements, it would well prove that 400 (or, even, more) species of Phlebotominae exist in the New World.

CLASSIFICATION

For many years, the subfamily Phlebotominae was considered to contain a single genus, *Phlebotomus* Rondani. Several students of American sand flies rendered the generic name as *Flebotomus*; some used both spellings of the name indiscriminately, to the extend of using both in the same publication. The concurrent use of *Flebotomus* and *Phlebotomus* became confusing and the matter was referred (Hemming, 1944) to the International Commission for Zoological Nomenclature.

In defining the genus, Rondani (1840, quoted by Barretto, 1947) used the name *Flebotomus*. This is an incorrect transliteration and Latinization of words of Greek origin. There is now no way of establishing the original intentions of Rondani. The use of *Flebotomus* in Rondani (1840) could have been a printer's misinterpretation of the manuscript. This certainly occurred in the publication of Rondani (1843, quoted by Barretto, 1947), where the name was given as *Hemotomus*.

Because we refer, in full, to the original designations of species, we have had to use both versions of the name, but by Opinion 256 of the International Commission for Zoological Nomenclature, *Flebotomus* is "an invalid original spelling of *Phlebotomus* Rondani, 1840" (Hemming, 1958). The *Flebotomus/Phlebotomus* controversy is now only of historical interest to students of Americans sand flies. Theodor (1948) proposed that the subfamily should be divided into four genera: *Phlebotomus* and *Sergentomyia* França for Old World species; *Brumptomyia* França & Parrot and *Lutzomyia* França for American forms. Most students of Phlebotominae now follow Theodor's classification, but a few still accept *Phlebotomus* as the only genus in the subfamily Phlebotominae.

Since the proposals of Theodor (1948) were made two new genera – *Warileya* Hertig and *Hertigia* Fairchild – have been described from the New World (Hertig, 1948; Fairchild, 1949).

Fairchild (1955) advocated the retention of the generic name *Phlebotomus* for all but the few species placed in the genera *Warileya* and *Hertigia*. He commented (Fairchild, 1955, p. 188) that: "... the name *Phlebotomus* is now firmly established in the medical as well as the entomological literature as the name for the bloodsucking psychodid sandflies. Any attempt to rename or separate off a considerable part of these insects would lead to much confusion, and in my opinion, would be unjustifiable on practical grounds". Fairchild (1955) separated the genus *Phlebotomus* into five subgenera: *Phlebotomus* s. str. and *Sergentomyia* for Old World species, *Psychodopygus* Mangabeira, *Viannamyia* Mangabeira and *Brumptomyia* for American forms. All subgenera except *Viannamyia* were separated into informally defined "species groups" and several groups were subdivided into informally defined "series". Professor G. B. Fairchild (see Young & Fairchild, 1974) has since modified his ideas about the classification of American Phlebotominae. The work of Fairchild (1955) remains of great importance for all subsequent attempts to arrange New World sand flies in an orderly and logical manner.

An entirely different interpretation of the subfamily Phlebotominae was given by Barretto (1955). In this publication, Barretto accepted the definition given for *Brumptomyia* by Theodor (1948), but rejected *Lutzomyia*, placing the majority of American species in the genus *Sergentomyia*, which Theodor (1948) had defined for Old World species only. Professor M. P. Barretto, but no other writer on American Phlebotominae, used *Sergentomyia* as a generic name for New World forms until 1958.

Barretto (1961*a* & *b*, 1962) accepted the definitions of the genera *Brumptomyia* and *Lutzomyia* given by Theodor (1948) and included *Warileya* in the subfamily Phlebotominae, but placed *Hertigia* in the subfamily *Bruchomyiinae*. Barretto gave subgeneric status to several of the "species groups" defined by Fairchild (1955). He defined (Barretto, 1961*a*) 15 subgenera of *Lutzomyia* but later referred only to 13 (Barretto, 1962). Barretto (1961*a*, 1962) divided subgenera of *Lutzomyia* into species groups, several of which included but one species. In general, but not invariably, the groups of Barretto (1961*a*, 1962) were equivalent to the series of Fairchild (1955).

Theodor (1965) and Young & Fairchild (1974) recognized *Brumptomyia*, *Lutzomyia*, *Warileya* and *Hertigia* as the acceptable generic names for American Phlebotominae. Theodor (1965) divided *Lutzomyia* into eight subgenera, all having been originally defined as subgenera of *Phlebotomus*, and 16 species groups. Some subgenera and some species groups of Theodor (1965) were further separated into series. Although Theodor (1965) did not accept the subgeneric names proposed by Barretto (1961*a* & 1962), there were few systematic differences between the two schemes for classification.

Since the publication of the proposals of Barretto (1961*a*, 1962), Ortiz & Scorza (1963) defined the subgenus *Pifanomyia* of the genus *Phlebotomus*. By the definitions given by Theodor (1948, 1965), the few species included in *Pifanomyia* belong to the genus *Lutzomyia*. The subgeneric name *Pifanomyia* was not used by Theodor (1965) or Young & Fairchild (1974). Martins & Silva (1968) proposed *Barrettomyia* as a subgenus of *Lutzomyia*. Young & Fairchild (1974) did not give subgeneric status to the species included in *Barrettomyia*.

A radical change in the taxonomy of American Phlebotominae was proposed by Forattini (1971, 1973). In the other recent systems of classification, the largest genus has been divided into many categories containing a few closely related species. Forattini (1971, 1973) considered such schemes to be unrealistic and attempted to simplify the classification of Phlebotominae by increasing the number of genera, decreasing the number of subgenera and rejecting the use of the informal categories "groups" and "series". He placed the genus *Hertigia* (Forattini, 1971, 1973) in the subfamily Bruchomyiinae and divided the subfamily Phlebotominae into 10 genera –

three for Old World species, seven for American forms. For New World sand flies, Forattini (1971, 1973) retained the generic names *Warileya, Brumptomyia* and *Lutzomyia* and created four new genera: *Pintomyia* Costa Lima, *Psychodopygus* Mangabeira, *Viannamyia* Mangabeira and *Pressatia* Mangabeira. The new genera of Forattini (1971, 1973) were originally defined as subgenera of *Phlebotomus*; other students of American Phlebotominae apply the names to subgenera of *Lutzomyia.*

Many of the supraspecific taxa defined by Forattini (1971, 1973) are undoubtedly heterogenous, his definitions of taxa are cumbersome, and obvious natural relationships between species are obscured.

The arrangement followed here is similar to that proposed by Young & Fairchild (1974). *Brumptomyia, Lutzomyia, Warileya* and *Hertigia* are accepted as valid generic names for American Phlebotominae, though we suspect that *Hertigia* could be a junior synonym of *Warileya. Lutzomyia* is divided into 16 subgenera (six being divided into two or more series) and 13 species groups. Young & Fairchild (1974) divided *Lutzomyia* into nine subgenera and 17 groups, with three subgenera and six groups separated into series. We differ from Young &Fairchild (1974) by accepting all but one of the subgeneric names proposed by Barretto (1962), though in several instances we define the subgenera differently. We also differ by restricting the term 'series' to subdivisions of subgenera, keeping species groups undivided. Unlike Theodor (1965) and Young & Fairchild (1974) we designate species groups and series by the name of the oldest species known from both sexes. We have made no attempt to indicate the systematic relations between subgenera and species groups. Subgenera of *Lutzomyia* are listed in chronological order of definition; groups and series are listed in the chronological order of the description of the nominate species. This arrangement reflects the historical development of knowledge about the morphological diversity of species of *Lutzomyia.* In a subsequent publication, we will speculate on the supraspecific relationships of *Lutzomyia* and the main lines of evolution of the genus.

GENERIC NAMES

Brumptomyia and *Lutzomyia* were first proposed (by França & Parrot, 1921, and França, 1924, respectively) as subgenera of *Phlebotomus.* Both names have been used variously by subsequent writers and the current use of *Lutzomyia* bears little relation to concepts when the name was introduced.

Brumptomyia was proposed (França & Parrot, 1921) as a subgeneric name for American sand flies with males possessing five major spines on the dististyle, a distinct inner basal tuft of setae on the basistyle, and unarmed parameres. As originally defined, *Brumptomyia* contained two species. Shannon (1929) described two species of sand fly from Peru, both conforming with the definition of *Brumptomyia* by França & Parrot (1921). Dyar (1929) revised the definition by excluding reference to the number of spines on the dististyle. Of the species which Dyar (1929) placed in *Brumptomyia,* all have basal tufts on the basistyle; five have five major spines on the

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dististyle and three have four major spines and a subterminal seta. Confusion about the use of the name *Brumptomyia* dates from Dyar (1929), but the subgenus, as conceived by França & Parrot (1921), was artificial.

Many species which are, today, included in the genus *Lutzomyia* could be placed in *Brumptomyia* as originally defined and as redefined by Dyar (1929). Of the 181 species of American Phlebotominae recognized by Fairchild (1955), 149 were placed in the subgenus *Brumptomyia*. Fairchild's concept of *Brumptomyia* derived from Dyar's definition. A few later writers raised *Brumptomyia*, as conceived by Fairchild (1955), to generic status. Many species now placed in the genus *Lutzomyia* have, at times, been described by the generic, or subgeneric, epithet *Brumptomyia*.

The modern definition of *Brumptomyia* derives not from França & Parrot (1921), Dyar (1929) or Fairchild (1955) but from the redefinitions given by Mangabeira (1942*a* & *b*), Mangabeira & Galindo (1944), Theodor (1948, 1965) and Barretto (1955). As now accepted, the genus *Brumptomyia* contains no species with females which attack man.

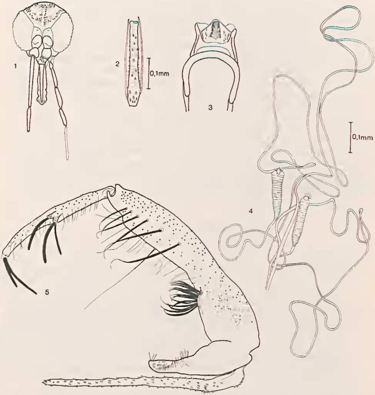
França (1920) created the subgenus *Lutzia* for American sandflies with the paramere of the male armed with a pair of curved spines. The name used by França (1920) was preoccupied and França (1924) renamed the subgenus *Lutzomyia*. Several other writers proposed names to replace *Lutzia* França, but the priority of *Lutzomyia* is not disputed. As now defined, the subgenus *Lutzomyia* s. str. conforms closely with the original concept of França (1920, 1924). As a generic title, *Lutzomyia* differs considerably from the original use of the name. Because of the wide morphological diversity within *Lutzomyia*, the simplest definition is that it contains species which cannot be included in the other three genera of American Phlebotominae. Most man-biting sand flies of the New World belong to *Lutzomyia*.

The definition of *Warileya* was modified by Fairchild & Hertig (1951*b*) and further modifications of the definition are indicated as a result of the studies of Velasco & Trapido (1974). The females of two species of *Warileya* have been recorded biting man.

For the present, it is most convenient to accept the original definitions of *Hertigia* (Fairchild, 1949, 1953) but the work of Velasco & Trapido (1974) suggests that *Hertigia* might be a synonym of *Warileya*. The blood feeding habits of the females of the only species of the genus remain unknown.

SUBGENERIC NAMES

Dyar (1929) recognized *Brumptomyia*, *Lutzomyia*, *Neophlebotomus* França & Parrot and *Shannonomyia* Dyar as the names for the American subgenera of the genus *Phlebotomus*. *Neophlebotomus*, as considered by Dyar (1929), was undoubtedly heterogenous, seeming to contain species which could not be fitted into the other subgenera. No other writers applied the name *Neophlebotomus* to American sand flies.



Figs. 1-5. *Brumptomyia* sp., female: head (1), 4th antennal segment (2), cibarium (3), spermathecae and ducts (4); *B. brumpti*, male: genitalia (5).

a row (or, at least, one) of long, curved, stout spines. Genital filaments usually very long and fine, frequently (in slide-mounted specimens) with the genital pump situated within the thorax. Aedeagus very small. Lateral lobes very long and very narrow.

Ascoids long, usually extending beyond the distal end of the antennal segment, with a short posterior extension.

All larval instars with only two caudal bristles.

1. **Brumptomyia avellari** (Costa Lima)

Phlebotomus avellari Costa Lima, 1932 – *Memórias do Instituto Oswaldo Cruz,* 26: 47-48 (M*).

Flebotomus avellari Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* **37**: 230-240, Plates I, VII-XI (M*, F*, P*, L*, E*).

PANAMA: ? (after Christensen, 1972).

COLOMBIA: *Boyacá* – Puerto Boyacá.

PERU: *Madre de Dios* – Iberia §.

BRAZIL: *Acre* – Rio Branco§; *Pará* – Belém§; *Maranhão* – Cururupú§; *Bahia* – Gandú§; *Rio de Janeiro* – Cardoso Moreira; *São Paulo* – Franca§, Palmeiras, Teodoro Sampaio; *Paraná* – Iporia§, Tapejara§; *Minas Gerais* – Buritizeiros§, Coreacu§, Itapecerica§, Jaboticatubas§, Lassance, Patos de Minas§; *Goiás* – Itumbiara§, Sítio d'Abadia§, Tupaciguara§; *Mato Grosso* – Aquidauana§, Camapuan§, Dourados§, Maracaja§, Nioaque§.

2. **Brumptomyia beaupertuyi** (Ortiz)

Phlebotomus (Brumptomyia) beaupertuyi Ortiz, 1954 – *Acta Biologica Venezuelica,* **1**: 238, 239, 249-250 (M*). Pifano, Ortiz & Alvarez, 1962 – *Archivos Venezolanos de Medicina Tropical y Parasitologia Médica,* **4**: 411-412, 419-422, 425, 426 (M*, F*).

COLOMBIA: *Santander* – San Vincente de Chucurí.

VENEZUELA: *Aragua* – Rancho Grande; *Lara* – Duaca; *Miranda* – Acavado, Agua Blanca.

3. **Brumptomyia bragai** Mangabeira & Sherlock

Brumptomyia bragai Mangabeira & Sherlock, 1961 – *Revista Brasileira de Biologia,* **21**: 270-272 (M*).

BRAZIL: *Bahia* – Cachoeira, Salvador; *Espírito Santo* – Santa Tereza§, Viana§, Vitória§.

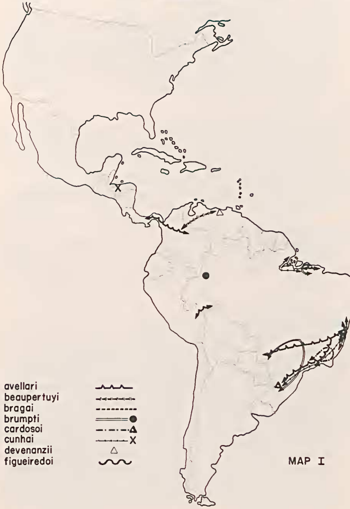
4. **Brumptomyia brumpti** (Larrousse)

Phlebotomus Brumpti Larrousse, 1920 – *Bulletin de la Societé de Pathologie Exotique,* **13**: 659 (M, F).

Phlebotomus brumpti Costa Lima, 1932 – *Memórias do Instituto Oswaldo Cruz,* **26**: 33-35, 47 (M*, F*). Galliard, 1934 (*pro parte*) – *Annales de Parasitologie Humaine et Comparée,* **12**: 196-197 (M*, F*).

Brumptomyia brumpti Carneiro & Sherlock, 1964 – *Revista Brasileira de Malariologia e Doenças Tropicais,* **16**: 313, 321 (P*).

BRAZIL: *Amazonas* – São Paulo de Olivença; *Pará* – Belém, Irituia, Itaquari, João Coelho, Ourém, Peixe Boi, São Domingos, São Miguel do Guamá; *São Paulo* – Lins, Lussanuia, Martinópolis, Palmeiras, Pompeia, Presidente Prudente, Rancharia, Ribeirão Preto, São José dos Campos, São Paulo (Serra da Cantareira), Teodoro Sampaio; *Paraná* – Iporia, Salto de Itararí, Terra Roxa; *Santa Catarina* – Serra da São Bento; *Minas Gerais* – Arceburgo, Arinos§, Coreaçu§, Lassance, Pedro Leopoldo§, ? Salto do Itatarí; *Mato Grosso* – Benito§, Porto Primavera.

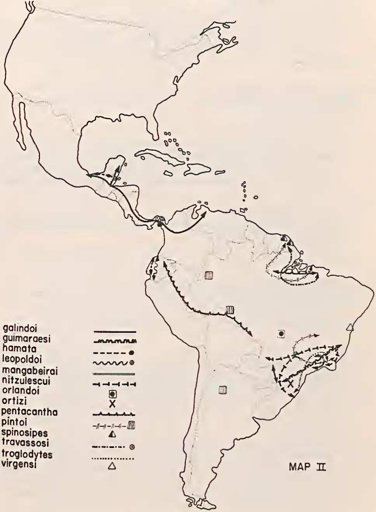


Genus BRUMPTOMYIA (in part)

avellari
beaupertuyi
bragai
brumpti
cardosoi
cunhai
devenanzii
figueiredoi
X
X

MAP I

Genus BRUMPTOMYIA (in part)


galindoi
guimaraesi
hamata
leopoldoi
mangabeirai
nitzulescui
orlandoi
ortizi
X
pentacantha
pintoi
spinosipes
travassosi
troglodytes
virgensi

MAP II

5. **Brumptomyia cardosoi** (Barretto & Coutinho)

Phlebotomus cardosoi Barretto & Coutinho, 1941 – *Papéis Avulsos do Departamento de Zoologia, Secretaria da Agricultura, São Paulo,* 1: 142-150 (M*).

Brumptomyia cardosoi Mangabeira & Sherlock, 1961 – *Revista Brasileira de Biologia,* 21: 271-272 (M*, F*).

BRAZIL: *Rio de Janeiro* – Duque de Caxias§, Marquês de Valença§, Nova Iguaçu; *São Paulo* – São José dos Campos; *Paraná* – Iporã§; *Minas Gerais* – Belo Horizonte§, Caratinga§, Coreaçu§, Dom Joaquim§, Itapecerica§, Nova Lima§, Peçanha§.

6. **Brumptomyia cunhai** (Mangabeira)

Flebotomus cunhai Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* 37: 205-208 (M*).

HONDURAS: Tela (Lancetilla Valley).

BRAZIL: *Amapá* – Macapá§; *Pará* – Aurá (Belém), São Miguel do Guaniá; *Bahia* – Ilhéus§; *Espírito Santo* – Vitória§; *Rio de Janeiro* – Nova Iguaçu§; *São Paulo* – São Sebastião§; *Paraná* – Borrazópolis§; *Minas Gerais* – Belo Horizonte§, Itanhomi§, Marlieria§; *Mato Grosso* – Aquidauana§, Maracani§.

7. **Brumptomyia devenanzii** (Ortiz & Scorza)

Phlebotomus (Brumptomyia) devenanzii Ortiz & Scorza, 1963 – *Acta Biologica Venezuelica,* 3: 351-353 (M*).

VENEZUELA: *Aragua* – Rancho Grande.

8. **Brumptomyia figueiredoi** Mangabeira & Sherlock

Brumptomyia figueiredoi Mangabeira & Sherlock, 1961 – *Revista Brasileira de Biologia,* 21: 268-270 (M*).

BRAZIL: *Bahia* – Uruçuca; *Espírito Santo* – Viana§, Vitória§.

9. **Brumptomyia galindoi** (Fairchild & Hertig)

Phlebotomus (Brumptomyia) galindoi Fairchild & Hertig, 1947 – *Annals of the Entomological Society of America,* 40: 613, 615 (M*). Díaz Nájera, 1963 – *Revista del Instituto de Salubridad y Enfermedades Tropicales,* 23: 193-197 (M*, F*).

Brumptomyia mesai Sherlock, 1962 – *Memórias do Instituto Oswaldo Cruz,* 60: 332-333 (M*).

MEXICO: *Chiapas* – Ocosocantla, Palenque, Santa Maria; *Quintana Roo* – ?; *Vera Cruz* – Catemaco, Sontecomapan.

BELIZE: Augustine§, Baking Pot§, Central Farm§, mile 8 & mile 10-11, Chiquibul Road§, Esperanza§, Guacamallo§, mile 48 Hummingbird Highway§, Iguana Creek§, Millionario§, Never Delay§, Never Delay road§, Roaring River§.

HONDURAS: Tela (Lancetilla Valley).

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

COSTA RICA: San Carlos, San Juan Miramas.

PANAMA: *Chiquiri* – Boquete.

COLOMBIA: *Santander* – San Vicente do Chucuri; *Bolivár* – Simití; *Boyacá* – Puerto Boyacá.

VENEZUELA: *Lara* – Duaca.

BRAZIL: *Mato Grosso* – Maracajai§; *Paraná* – Terra Roxa§.

10. **Brumptomyia guimaraesi** (Coutinho & Barretto)

Phlebotomus guimaraesi Coutinho & Barretto, 1941 – *Revista de Biologia e Higiene*, 11: 78-81, Plate IV (M*, F*).

BRAZIL: *Espírito Santo* – Santa Tereza§; *São Paulo* – Itaporanga, Itararé, Una; *Paraná* – Ponta Grossa§; *Minas Gerais* – Belo Horizonte§, Patos de Minas§.

11. **Brumptomyia hamata** (Fairchild & Hertig).

Phlebotomus (Brumptomyia) hamatus Fairchild & Hertig, 1947 – *Annals of the Entomological Society of America*, 40: 613, 614 (M*).

MEXICO: *Veracruz* – Catemace, Santecomapan.

BELIZE: Augustine§, Central Farms§, Millionario§.

PANAMA: *Panama* – Chilibre, Chorrera; *Canal Zone* – Cruces Trail, Madden Dam Highway.

ECUADOR: *Guayas* – ? ; *Los Ríos* – Quevedo; *Manabi* – ?.

12. **Brumptomyia leopoldoi** (Rodriguez)

Phlebotomus leopoldoi Rodriguez, 1953 – *Revista Ecuatoriana de Higiene y Medicina Tropical*, 10: 52-54 (M*, F*).

Phlebotomus hamatus Rodriguez, 1950 – *Revista Ecuatoriana de Higiene y Medicina Tropical*, 7: 25. Rodriguez, 1952 – *Revista Ecuatoriana de Higiene y Medicina Tropical*, 8/9: 17.

Brumptomyia guimaraesi (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 530.

BELIZE: Augustine§.

PANAMA: ? (after Christensen, 1972).

ECUADOR: *Cañar* – Cochancay; *Esmeraldas* – Cumbiliacha, Estero El Ceibo, Tonichigüe; *Guayas* – Manglaralto, Naranjal; *Los Ríos* – El Mangén, Lechugal, Quevedo; *Manabi* – Calecta.

13. **Brumptomyia mangabeirai** (Barretto & Coutinho)

Phlebotomus mangabeirai Barretto & Coutinho, 1941 – *Papéis Avulsos do Departamento de Zoologia, Secretaria da Agricultura, São Paulo*, 1: 151-154 (M*).

BRAZIL: *São Paulo* – Campinas, São José dos Campos, São Paulo; *Minas Gerais* – Belo Horizonte§, Ibirité§, Itapecerica§, Nova Lima§.

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

14. **Brumptomyia nitzulescui (Costa Lima)**

Phlebotomus nitzulescui Costa Lima, 1932 – *Memórias do Instituto Oswaldo Cruz*, 26: 46-47 (M*). Galvão & Coutinho, 1940 – *Arquivos de Higiene e Saúde Pública*, 6: 57 (? F*).

Phlebotomus brumpti Nitzulescu, 1930 – *Annales de Parasitologie Humaine et Comparée*, 8: 389-393 (M).

BRAZIL: *Espírito Santo* – Santa Tereza§, Viana§, Vitória§; *Rio de Janeiro* – Duque de Caxias§, Marquês de Valença§, Nova Iguaçu§; *São Paulo* – Franca§, Lins, Martinópolis, Presidente Prudente, Rancharia, São José dos Campos, São Paulo; *Paraná* – Iporã§; *Santa Catarina* – Florianópolis§, Palhoça§, São Miguel do Oeste§, *Minas Gerais* – Belo Horizonte§, Itapecerica§, Lassance, Marlieria, Nova Lima§, Passabem§, Patos de Minas§, Sabará§; *Mato Grosso* – Aquidauana§.

15. **Brumptomyia orlandoi** Fraiha, Shaw & Lainson

Brumptomyia orlandoi Fraiha, Shaw & Lainson, 1970 – *Revista Brasileira de Biologia*, 30: 465-467 (M*).

BRAZIL: *Mato Grosso* – km. 260, Xavantina/Cachimbo road.

16. **Brumptomyia ortizi** Martins, Silva & Falcão

Brumptomyia ortizi Martins, Silva & Falcão, 1971 – *Boletim do Museu de História Natural da Universidade Federal de Minas Gerais*, Zoologia, N^{o} 9: 1-3 (M*).

BRAZIL: *Paraná* – Ponta Grossa§.

17. **Brumptomyia pentacantha (Barretto)**

Flebotomus pentacanthus Barretto, 1947 – *Papéis Avulsos do Departamento de Zoologia, Secretaria da Agricultura, São Paulo*, 8: 239-241 (M*).

Flebotomus mangabeirai Damasceno, Arouck & Causey, 1949 – *Revista do Serviço Especial de Saúde Pública*, 2: 828 (distribution: Pará).

Brumptomyia mangabeirai (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 531.

ECUADOR: Rio Napo, Pastaza.

PERU: *Madre de Dios* – Iberia§.

BRAZIL: *Acre* – Cruzeiro do Sul§, Feijó§, Rio Branco§; *Rondônia* – Guajará Mirim§; *Pará* – Aurá (Belém), Irituia, Ourém, Santarém; *Mato Grosso* – Mato Grosso§.

BOLIVIA: *Pando* – Villa Bella§.

18. **Brumptomyia pintoi (Costa Lima)**

Phlebotomus pintoi Costa Lima, 1932 – *Memórias do Instituto Oswaldo Cruz*, 26: 47-48 (M*).

FRENCH GUYANA: *Cayenne* – Baduel, Cabassou, Crique Anguille, Montabo, Rorota; *Oyapock* – Maripa.

BRAZIL: *Rondônia* – Guajará Mirim§; *Amazonas* – São Paulo de Olivença; *Pará* – Belém, Irituia, Óbidos, Santarém, São Domingo do Capim; *Rio de Janeiro* – Cardoso Moreira; *São Paulo* – Palmeiras; *Minas Gerais* – Arceburgo, Arinos§, Belo Horizonte§, Itapecerica§, Jaboticatubas, Lagoa Santa§, Lassance, Luz§, Paracatu§, Pedro Leopoldo§; *Mato Grosso* – Camapuan§, Capim Branco§.

ARGENTINA: *Tucamán* – Monte Bello.

19. **Brumptomyia spinosipes** (Floch & Abonnenc)

Phlebotomus spinosipes Floch & Abonnenc, 1943 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication N° 61: 16-18 (F*).

FRENCH GUYANA: *Cayenne* – Baduel, Cabassou, Crique Anguille, Montabo; *Iracoubo* – Crique Blanche; *Oyapock* – Maripa.

20. **Brumptomyia travassosi** (Mangabeira)

Flebotomus travassosi Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz*, 37: 201-204 (M*).

Flebotomus (Brumptomyia) travassosi Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz*, 37: 376-380, Plates I-VI (F*, P*, L*, E).

Phlebotomus brumpti Floch & Abonnenc, 1944 – *Institut Pasteur de Guyane française et du Territoire de l'Inini*, Publication N° 38: 10-14 (M*, F*).

PANAMA: *Panama* – La Victoria (Cerro Jefe).

FRENCH GUYANA: *Cayenne* – Baduel, Cabassou, Crique Anguille, Montabo; *Oyapock* – Maripa.

BRAZIL: *Amapá* – Macapá§; *Pará* – Anhagá, Aurá (Belém), Irituia, João Coelho, Monte Alegre, Ourém, Peixe Boi, São Domingo do Capim.

21. **Brumptomyia troglodytes** (Lutz)

Phlebotomus troglodytes Lutz, 1922 – *Folha Médica*, 3: 89 (M). Nitzulescu, 1930 – *Annales de Parasitologie Humaine et Comparée*, 8: 386 (M*).

Phlebotomus brumpti Pinto, 1926 – *Ciência Médica*, 4: 375 (M).

BRAZIL: *Rio de Janeiro* – Nova Iguaçú§; *Santa Catarina* – Serra de São Bento; *Minas Gerais* – Belo Horizonte§, Itabirito§, Nova Lima§, Santa Bárbara§.

22. **Brumptomyia virgensi** Mangabeira & Sherlock

Brumptomyia virgensi Mangabeira & Sherlock, 1961 – *Revista Brasileira de Biologia*, 21: 273-274 (M*).

BRAZIL: *Bahia* – Salvador.

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

Genus *LUTZOMYIA* França

Lutzomyia França, 1924 – *Jornal de Sciências Matemáticas, Físicas e Naturais*, 17: 10 (subgenus, of the genus *Phlebotomus*, defined with *Phlebotomus longipalpis* Lutz & Neiva as the type species). Theodor, 1948 – *Bulletin of Entomological Research*, 39: 104 (genus defined). Barretto, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo*, 4: 91 (genus defined). Theodor, 1965 – *Journal of Medical Entomology*, 2: 181 (genus defined). Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 98 (genus redefined). Forattini, 1973 – "Entomologia Médica, 4º Volume": 207-210 (genus redefined).

Sergentomyia Barretto, 1955 – *Revista Brasileira de Entomologia*, 3: 78 (*pro parte*).

Pintomyia Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 103-104 (subgenus *Pintomyia* Costa Lima raised to generic level). Forattini, 1973 – "Entomologia Médica, 4º Volume": 497-506.

Psychodopygus Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 104 (subgenus *Psychodopygus* Mangabeira raised to generic level). Forattini, 1973 – "Entomologia Médica, 4º Volume": 388-495.

Viannamyia Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 106 (subgenus *Viannamyia* Mangabeira raised to generic level). Forattini, 1973 – "Entomologia Médica, 4º Volume": 506-511.

Pressatia Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 106 (subgenus *Pressatia* Mangabeira raised to generic level). Forattini, 1973 – "Entomologia Médica, 4º Volume": 511-521.

Cibarium of the female armed with horizontal (hind) and vertical (fore) teeth arranged in transverse rows. Terminalia of the male small or of medium size, the combined lengths of the basistyle and dististyle being less than the length of the thorax; dististyle rarely bearing more than seven spines, of which 1-6 are large and 1-3 are small. Larva, except in first instar, with four caudal bristles.

Subgenus LUTZOMYIA s. str.

(Map III)

Lutzomyia França, 1924 – *Jornal de Sciências Matemáticas, Físicas e Naturais*, 17: 10 (new name for *Lutzia* França, *nec* Theobold). Martins, Souza & Silva, 1961 – *Revista Brasileira de Biologia*, 21: 231 (subgenus, of the genus *Lutzomyia*, defined). Barretto, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo*, 4: 92 (subgenus defined). Theodor, 1965 – *Journal of Medical Entomology*, 2: 181 (subgenus defined). Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 99 (subgenus redefined). Forattini, 1973 – "Entomologia Médica, 4º Volume": 212- 273.

Lutzia França, 1920 – *Bulletin de la Societé Portugaise des Sciences Naturelles*, 10: 284 (subgenus, of the genus *Phlebotomus*, defined with *Phlebotomus longipalpis* Lutz & Neiva as the type species).

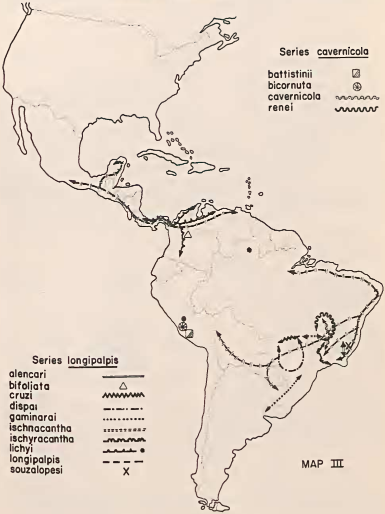
Fransaia Dyar & Nuñez-Tóvar, 1926 – *Insecutor Inscitae Menstruus*, 14: 155 (new name for *Lutzia* França).

Lutziomyia Cordero, Vogelsang & Cossio, 1928 – *Boletín del Instituto de Clínica Quirúrgica*, 4: 649 (subgenus, of the genus *Phlebotomus*, defined).

Lutziola Strand, 1932 – *Folio die Zoologie und Hydrobiologie*, 4: 195 (new name for *Lutzia* França).

SciELO

Subgenus **LUTZOMYIA**


Series cavernicola
battistinii
bicornuta
cavernicola
renei
Series longipalpis
alencari
bifoliata
cruzi
dispai
gaminarai
ischnacantha
ischyracantha
lichyi
longipalpis
souzalopesi

MAP III

Fifth palpal segment long, greater than the combined lengths of the third and fourth palpal segments, sometimes approaching the combined lengths of palpal segments 2, 3 and 4. Male with the basistyle bearing an inner basal tuft of four or more long and well developed hairs and with the dorsal surface of the paramere bearing 2-5 stout spines often, but not invariably, in the shape of antilope horns.

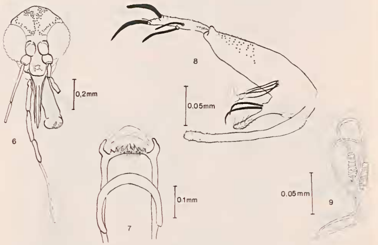
The subgenus *Lutzomyia* s. str. is separated into two series.

Series *longipalpis*

(Figs. 6-9)

Cibarium of the female with 4, 8 or more horizontal teeth and one or two rows of vertical teeth; pigment patch well defined; cibarial arch complete. Body of the spermatheca small, cylindrical in shape, weakly annulated; junction between spermatheca and individual duct well defined; individual duct long, common spermathecal duct short or absent.

Dististyle of the male with four well developed spines and a subterminal seta (which may be difficult to see and is absent in one species). Basistyle with an inner basal tuft of 2-6 hair-like or leaf-like hairs or the tuft modified and fan-shaped. Paramere with two or more spines implanted on the dorsal surface, usually curved but sometimes straight or modified and fan-shaped.



Figs. 6-9. Subgenus *Lutzomyia* s. str., series *longipalpis*. *L. longipalpis*: female – head (6), cibarium (7), spermathecae & ducts (8); male – genitalia (8).

1. **Lutzomyia (Lutzomyia) alencari** Martins, Souza & Falcão

    Lutzomyia (Lutzomyia) alencari Martins, Souza & Falcão, 1962 – *Revista Brasileira de Biologia,* 22: 42-44 (M*).

    BRAZIL: *Espírito Santo* – Mimoso do Sul§; *Minas Gerais* – Grão Mogol§, Jequitinhonha§.

2. **Lutzomyia (Lutzomyia) bifoliata** Osorno-Mesa, Morales-Alarcon, de Osorno & de Hoyos

    Lutzomyia bifoliata Osorno-Mesa, Morales-Alarcon, de Osorno & de Hoyos, 1970 – *Boletim do Museu de História Natural da Universidade Federal de Minas Gerais,* Zoologia N° 6: 9-11 (M*).

    COLOMBIA: *Boyacá* – Puerto Boyacá.

3. **Lutzomyia (Lutzomyia) cruzi** (Mangabeira)

    Flebotomus cruzi Mangabeira, 1938 – *Memórias do Instituto Oswaldo Cruz,* 33: 351-352 (M*). (F known but not yet described).

    BRAZIL: *Goiás* – Paraúna§; *Mato Grosso* – Camapuan.

4. **Lutzomyia (Lutzomyia) dispar** Martins & Silva

    Lutzomyia (Lutzomyia) dispar Martins & Silva, 1963 – *Revista Brasileira de Biologia,* 23: 243-245 (M*). (F known but not yet described).

    BRAZIL: *São Paulo* – Cajurú (Cassia dos Coqueiros); *Mato Grosso* – Aquidauana§, Camapuan§; *Goiás* – Paraúna§.

5. **Lutzomyia (Lutzomyia) gaminarai** (Cordero, Vogelsang & Cossio)

    Phlebotomus (Lutziomyia) gaminarai Cordero, Vogelsang & Cossio, 1928 – *Boletín del Instituto de Clínica Quirúrgica,* 4: 649 (M, F). Cordero, Vogelsang & Cossio, 1928 – *Quarta Reunion de la Sociedad Argentina de Patología Regional del Norte*: 649 (M*, F).

    Lutzomyia gaminarai Martins, Godoy & Silva, 1961 – *Revista Brasileira de Biologia,* 21: 312-315 (M*).

    BRAZIL: *Paraná* – Ponta Grossa (Vila Velha).

    URUGUAY: *Salto* – Estância "El Sarandí"; *Tacuarembó* – Tambores.

6. **Lutzomyia (Lutzomyia) ischnacantha** Martins, Souza & Falcão

    Lutzomyia (Lutzomyia) ischnacantha Martins, Souza & Falcão, 1962 – *Revista Brasileira de Biologia,* 22: 39-42 (M*). Martins, Falcão & Silva, 1975 – *Revista Brasileira de Biologia,* 35: 298-300 (F*).

    BRAZIL: *Minas Gerais* – Buritizeiro§, Januária§.

7. **Lutzomyia (Lutzomyia) ischyracantha** Martins, Falcão & Silva

    Lutzomyia (Lutzomyia) ischyracantha Martins, Falcão & Silva, 1962 – *Revista Brasileira de Biologia,* 22: 227-231 (M*, F*).

BRAZIL: *Minas Gerais* – Caeté§, Caratinga§, Diamantina§, Gouveia, Itabirito§, Montes Claros§, Ouro Preto§, Santa Bárbara§, Santana do Riacho§.

8. **Lutzomyia (Lutzomyia) lichyi** (Floch & Abonnenc)

Phlebotomus lichyi Floch & Abonnenc, 1950 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 208: 1-2, 4 (F*). Floch & Kramer, 1965 – *Archives de l'Institut Pasteur de la Guyane française et de l'Inini,* Publication Nº 496: 6-8 (M*).

Phlebotomus vexillarius Fairchild & Hertig, 1952 – *Annals of the Entomological Society of America,* 45: 514, 515, 521, 524 (M*, F*).

Phlebotomus foliatus Mirsa & Ortiz, 1952 – *Revista de Sanidad y Asistencia Social,* 17: 249-252 (M*).

PANAMA: *Bocas del Toro* – Almirante; *Cocle* – Tucue; *Colon* – Cacique; *Darien* – Altos de Quia (Pinogana District); *Panama* – Cerro Campana, Cerro Chucanti (Serrania Maja), Cerro Jefe (La Victoria); *Canal Zone* – Rio del Medio.

COLOMBIA: *Antioquia* – Anorí, Mutatá; *Caldas* – Victoria; *Huila* – Neiva; *Magdalena* – Rio Don Diego; *Meta* – Acacias, San Martin; *Santander* – Socorro; *Tolima* – Mariquita, Melgar; *Valle* – Buenaventura.

VENEZUELA: *Aragua* – Rancho Grande; *Carabobo* – Rio Borburata; *Distrito Federal* – Caracas (Jardim Botanico); *Miranda* – Guatopo, Los Chorros; *Nueva Esparta*: Isla de Margarita.

PERU: *Huánuco* – Tingo-Maria§.

BRAZIL: *Roraima* – Caracaraí§.

9. **Lutzomyia (Lutzomyia) longipalpis** (Lutz & Neiva)

Phlebotomus longipalpis Lutz & Neiva, 1912 – *Memórias do Instituto Oswaldo Cruz,* 4: 89, 90, 91 (M, F). Guitton & Sherlock, 1969 – *Revista Brasileira de Biologia,* 29: 384-397 (P*, L*, E*).

Flebotomus longipalpis Mangabeira, 1938 – *Memórias do Instituto Oswaldo Cruz,* 33: 353, Plate IV (M*). Coutinho, 1940 – *Arquivos de Zoologia do Estado de São Paulo,* 1: 334 (F*).

Lutzomyia longipalpis Ward & Ready, 1975 – *Journal of Entomology* (Series A), **50**: 128, 130 (E*).

Phlebotomus Otamae Nuñez-Tóvar, 1924 – "Mosquitos y flebotomos de Venezuela": 44 (M).

Phlebotomus almazani Galliard, 1934 – *Annales de Parasitologie Humaine et Comparée,* 12: 193-195 (F*).

MEXICO: *Chiapas* – Palenque, Tuxtla Gutierrez; *Guerrero* – Huitzuco; *Michoacan* – Caracuaro, Huetamo; *Morelos* – Granjas Merida, Tequesquitengo; *Puebla* – Llano Grande; *Quintana-Roo* – Carretera Peto-Chetumal; *Yucatan* – Chichen Itzá.

GUATEMALA: *Departamento del Progresso/Departamento Zacapa* (?).

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

EL SALVADOR: *Cabañas* – Victoria (Canton Paratao, Canton Peña Blanca); *Chalatenango* – Nombre de Jesus (Canton Potrerillos), San Isidro Labrador (Canton Alvarenga); *Santa Ana* – Metapan (Canton San Jerenico).

COSTA RICA: Barranca, Puntarenas.

PANAMA: *Panama* – Cerro Campana.

COLOMBIA: *Caldas* – Victoria; *Cundinamarca* – Nilo; *Huila* – Neiva; *Tolima* – Ataco, Coyaima, Honda, Icononzo, Melgar, Purificacion.

VENEZUELA: *Aragua* – Guanábano, Urdaneta; *Carabobo* – Isla de Otama; *Cojedes* – El Tinaco; *Falcon* – Mene de Mauroa; *Guárico* – Altagracia de Orituco, Parapara, Ribas, San Francisco de Tiznados, San José de Tiznados, Santa Maria de Ipire, Zaraza; *Nueva Esparta* – Isla de Margarita, *Sucre* – Barbacoa, Cangrejal, El Tacal, Mariquitar, Petare; *Yaracuy* – San Felipe.

BRAZIL: *Pará* – Abaetetuba, Belém (Bosque), Monte Alegre, Mojú, Santarém; Maranhão – Caxias§; *Piauí* – Cocal, Piracuruca (Sete Cidades)§; *Ceará* – Acaraú, Araripe, Aurora, Barbalha, Baturité, Brejo Santo, Beberibe, Camocim, Canindé, Caririaçú, Cariré, Capistrano, Caucaia, Cedro, Chaval, Coreaú, Crateús, Crato, Curú, Fortaleza, Frade, Granja, Icó, Iguatú, Independência, Ipú, Ipueiras, Itapagé, Itapipoca, Jaguaruana, Jardim, Juazeiro do Norte, Limoeiro do Norte, Marangupe, Massapê, Mauriti, Milagres, Missão Velha, Monsenhor Tabosa, Morada Nova, Mocambo, Nova Russas, Pacajús, Pacatuba, Pentecoste, Quixadá, Quixeramobim, Redenção, Russas, Saboeiro, Santa Cruz do Norte, Santa do Acaraú, Santa Quitéria, Santanopole, Senador Pompeu, Sobral, Tamboril, Tauá, Tianguá, Ubajara, Uruburetama, Viçosa do Ceará; *Rio Grande do Norte* – Açú, Arês, Pendências, São José do Mipibú; *Paraíba* – Alagôa Grande, Caiçara, Itabaiana, Itaporanga, João Pessôa; *Pernambuco* – Custódia, Exú, Floresta, Gravatá, Olinda, Recife; *Alagôas* – ? (according to Lucena, 1960); *Sergipe* – Aracajú, Indiaroba§; *Bahia* – Barreiras§, Feira de Santana§, Itaité, Jacobina, Jequié; *Espírito Santo* – Baixo Guandú§, *Barra de São Francisco§, Linhares§; Rio de Janeiro* – Macaé§, Rio de Janeiro; *São Paulo* – Cassia dos Coqueiros, Pirapora do Bom Jesus, Salto de Pirapora; *Minas Gerais* – Arcos§, Arinos§, Belo Horizonte§, Betim§, Buritizeiros§, Caratinga§, Conceição de Ipanema§, Conselheiro Pena§, Cordisburgo, Corinto§, Diamantina§, Espinosa§, Francisco Sá§, Grão Mogol§, Itanhomí§, Ituêta§, Jaboticatubas§, Janaúba§, Januária§, Jequitinhonha§, Lagoa Santa§, Manga§, Mato Verde§, Matozinhos§, Monte Azul§, Montes Claros§, Mutum§, Nova Lima§, Paracatú§, Pedro Leopoldo§, Porteirinha§, Santana do Riacho§, São João da Ponte§, Tarumirim§, Tupaciguara§; *Goiás* – Amaro Leite§, Arraias§, Itumbiara§, Parauna§, Sítio d'Abadia§; *Mato Grosso* – Aquidauana§, Bataguaçú, Bonito§, Camapuan§, Miranda§.

ARGENTINA: *Misiones* – Candelaria.

PARAGUAY: Villarrica.

BOLIVIA: *La Paz* – Los Yungas (Huirapata, Misquimayo, Muancapampa, Mururata, San José, Suiqui, Tereleni, Yolosa).

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

10. Lutzomyia (Lutzomyia) souzalopesi Martins, Silva & Falcão

Lutzomyia (Lutzomyia) souzalopesi Martins, Silva & Falcão, 1970 – *Revista Brasileira de Biologia,* **30**: 559-561 (M*, F*).

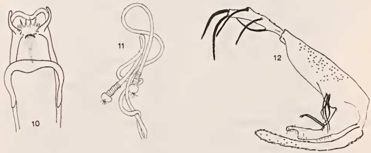
BRAZIL: Espírito Santo – Aracruz§.

Series *cavernicola*

(Figs. 10-12)

Cibarium of the female with 4 horizontal teeth and a single row of vertical teeth; pigment patch poorly defined; cibarial arch complete. Body of the spermatheca elongate (somewhat carrot-shaped) and weakly or strongly annulated; the body of the spermatheca continuous with its duct; individual spermathecal duct long; common duct short or absent.

Dististyle of the male with five spines. Basistyle with an inner basal tuft of 4-6 leaf-like, hair-like or spine-like setae. Dorsal surface of the paramere armed with two curved spines in three species, five spines in one species.



Figs. 10-12. Subgenus *Lutzomyia* s. str., series *cavernicola*. *L. cavernicola*: female – cibarium (10), spermathecae and ducts (11); male – genitalia (12).

11. Lutzomyia (Lutzomyia) battistinii (Hertig)

Phlebotomus battistinii Hertig, 1943 – *American Journal of Hygiene,* **37**: 247-248, 250, Plate I (M*, F*).

PERU: Apurimac – Andahuaylas.

12. Lutzomyia (Lutzomyia) bicornuta (Blancas & Herrer)

Phlebotomus bicornutus Blancas & Herrer, 1959/60 – *Revista de Medicina Experimental,* **13**: 58-60, 63, 65 (M*, F*).

PERU: Huancavelica – Anco.

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

13. Lutzomyia (Lutzomyia) cavernicola (Costa Lima)

Phlebotomus cavernicolus Costa Lima, 1932 – *Memórias do Instituto Oswaldo Cruz*, 26: 49, Plates XI, XIV, XV (F*).

Lutzomyia cavernicola Martins, Souza & Silva, 1961 – *Revista Brasileira de Biologia*, 21: 226-230 (M*, F*).

BRAZIL: *Minas Gerais* – Bocaiuva§, Cordisburgo (Gruta de Maquiné), Jaboticatubas§, Januária§, Monjolos§, Montes Claros§, Pedro Leopoldo§, Santa Luzia§, Taquaraçú§, Unaí§; *Goiás* – Arraias§, Nova Planaltina§.

14. Lutzomyia (Lutzomyia) renei (Martins, Falcão & Silva)

Phlebotomus renei Martins, Falcão & Silva, 1957 – *Revista Brasileira de Malariologia e Doenças Tropicais*, 9: 322-323, 325 (M*). Sherlock, 1957 – *Revista Brasileira de Biologia*, 17: 548-553 (F*, P*, L*, E*).

BRAZIL: *Minas Gerais* – Arcos§, Buritizeiro§, Cordisburgo§, Diamantina§, Jaboticatubas§, Januária§, Lagoa Santa§, Matozinhos§, Montes Claros§, Ouro Preto§, Pains§, Paracatú§, Pedro Leopoldo§, São João da Ponte§, Taquaraçú§, Varzelandia§; *Goiás* – Arraias§.

Subgenus PINTOMYIA Costa Lima

(Figs 13-17, Map IV)

Pintomyia Costa Lima, 1932 – *Memórias do Instituto Oswaldo Cruz*, 26: 44 (subgenus, of the genus *Phlebotomus*, defined with *Phlebotomus fischeri* Pinto as the type species). Barretto, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo*, 4: 92 (subgenus, of the genus *Lutzomyia*, defined). Theodor, 1965 – *Journal of Medical Entomology*, 2: 192 (subgenus defined). Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 103 (defined as a genus). Forattini, 1973 – "Entomologia Médica, 4º Volume": 497-506.

Fifth palpal segment long, greater than the combined lengths of segments 3 and 4. Hind femur with a longitudinal row of 3-8 spines.

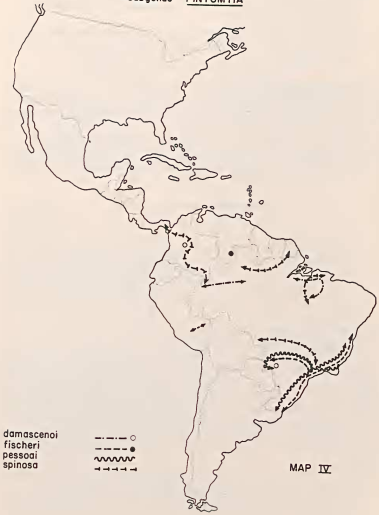
Cibarium of the female with four horizontal teeth, two or three rows of vertical teeth and, sometimes, lateral teeth; pigment patch well or poorly defined; cibarial arch complete. Body of the spermatheca capsular, with smooth walls; 'head' of the spermatheca lacking, the "hairs" being diffusely arranged over the distal part of the body; walls of the individual spermathecal duct partly or completely chitinized; common duct with membranous or transparent walls.

Dististyle of the male with four well-developed spines and a subterminal seta. Inner basal tuft of the basistyle composed of hair-like setae. Paramere simple, unarmed.

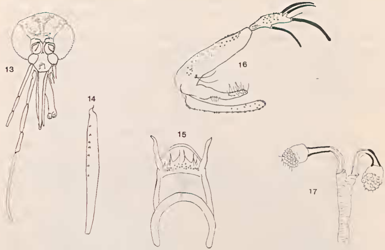
15. Lutzomyia (Pintomyia) damascenoi (Mangabeira)

Flebotomus (Pintomyia) damascenoi Mangabeira, 1941 – *Memórias do Instituto Oswaldo Cruz*, 36: 369-375 (M*, F*).

Subgenus **PINTOMYIA**


damascenoi —·—·— ○
fischeri – – – – ●
pessoai ∿∿∿∿
spinosa ⊣⊣⊣⊣

MAP IV



Figs. 13-17. Subgenus *Pintomyia. L. fischeri*: female – head (13), hind femur (14), cibarium (15), spermathecae and ducts (17); male genitalia (16).

Pintomyia damascenoi Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 104. Forattini, 1973 – "Entomologia Médica, 4º Volume": 503-505 (M*, F*).

COLOMBIA: *Meta* – Acacias.

BRAZIL: *Amazonas* – Benjamin Constant, Coari, Fonte Boa, Manaus, Tabatinga, Tefé; *Pará* – Abaetetuba, Ananindeua§, Belém, Castanhal§, Igarapé Açú, Irituia, João Coelho, Marabá, Ourém, Peixe Boi, São Miguel do Guamá, Timboteua; *Maranhão* – Cururupú§; *Mato Grosso* – Maracajú§.

16. Lutzomyia (Pintomyia) fischeri (Pinto)

Phlebotomus fischeri Pinto, 1926 – *Ciência Médica*, 4: 373 (M). Theodor, 1932 – *Bulletin of Entomological Research*, 23: 22, 23 (F*). Barretto, 1941 – *Anais da Faculdade de Medicina da Universidade de São Paulo*, 17: 385-389, Plates I, XVII-XX, LII (P*, L*, E*).

Phlebotomus (Pintomyia) fischeri Costa Lima, 1932 – *Memórias do Instituto Oswaldo Cruz*, 26: 43-44, 51 (M*, F*).

Pintomyia fischeri Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 104. Forattini, 1973 – "Entomologia Médica, 4º Volume": 500-502 (M*, F*, P*, L*).

Phlebotomus gibsoni Pifano & Ortiz, 1972 – *Revista del Instituto Nacional de Higiene*, 5: 29-30, 35 (F*). (New synonymy).

VENEZUELA: Territorio Federal Amazonas – Niyaayobateri (Sierra Párima).

PERU: *Cuzco* – Echarate§, Quellouno§, Quillabamba§, Torreblanca; *Madre de Dios* – Salvación§.

BRAZIL: *Pernambuco* – Recife; *Bahia* – Buerarema§, Canavieiras§, Gandú§, Ilhéus, Itabuna§, Itapebí§, Jequié, Poções, Taperoá§, Ubatan§, Una§, Valença§; *Espírito Santo* – Aracruz§, Barra de São Francisco§, Colatina§, Linhares§, Santa Tereza§, São João (?), Vitória; *Rio de Janeiro* – Angra dos Reis, Caxias§, Magé§, Nova Iguaçú§, Petrópolis, Rezende (Itatiaia), Rio de Janeiro (Jacarepaguá), Vassouras§; *São Paulo* – Alto da Serra, Amparo, Apaí§, Avaré, Bateia, Cabreuva, Cajurú, Campinas, Campos do Jordão, Capão Bonito, Caraguatatuba, Catanduva, Cubatão, Franca, Guaratinguetá, Guarujá, Igarapava, Iguape, Itanhaém, Itapecerica da Serra, Itaporanga, Jacareí, Jacupiranga, Jundiaí, Leme, Mogí das Cruzes, Mogí Mirim, Monte Aprazível, Novo Horizonte, Olimpia, Osasco, Palmeiras, Perús, Piedade, Pindamonhangaba, Piracicaba, Pompéia, Porto Feliz, Prainha, Presidente Prudente, Rancharia, Ribeirão Preto, Rocinha, Salesópolis, Santo Amaro, São José dos Campos, São José do Rio Pardo, São Paulo, São Sebastião§, São Vicente, Sorocaba, Tamoio, Tietê, Una, Vera Cruz; *Paraná* – Altonia, Cambará, Salto do Itararé, Santa Cruz do Monte Castelo; *Santa Catarina* – Biguaçú§, Blumenau§, Brusque§, Florianópolis§, Itajaí§, Jacinto Machado§, São Carlos§, São João do Sul; *Rio Grande do Sul* – Conceição do Arroio, São José do Norte, Torres; *Mato Grosso* – Bataguaçú, Caarapó, Nova Andradina; *Minas Gerais* – Além Paraíba§, Alfenas§, Arceburgo, Barra Longa§, Belo Horizonte§, Belo Vale§, Campestre§, Caratinga§, Central de Minas§, Conceição de Ipanema§, Conceição do Rio Verde§, Conselheiro Pena§, Contagem§, Cruzeiro da Fortaleza§, Curvelo§, Entre Rios de Minas§, Galileia§, Itambacurí§, Itanhandú, Itanhomí§, Lagoa Santa§, Leopoldina§, Marlieria§, Monte Carmelo§, Nova Lima§, Oliveira§, Patos de Minas§, Peçanha§, Perdões§, Pitangui§, Rio Casca§, Rio Preto§, Sabará§, Santo Antonio do Amparo§, São Lourenço§, Teófilo Otoni§.

17. Lutzomyia (Pintomyia) pessoai (Coutinho & Barretto)

Phlebotomus pessoai Coutinho & Barretto, 1940 – *Revista de Biologia e Higiene*, **10**: 98-102 (M*, F*). Barretto, 1941 – *Anais da Faculdade de Medicina da Universidade de São Paulo*, **17**: 407, 423-425, Plate II (P, L, E*).

Pintomyia pessoai Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 104. Forattini, 1973 – "Entomologia Médica, 4º Volume": 498 (M*, F*).

BRAZIL: *Bahia* – Poções; *Rio de Janeiro* – Itacurussá§, Petrópolis; *São Paulo* – Andradina, Araçatuba, Araraquara, Assis, Avanhandava, Avaré, Barra Bonita, Biriguí, Catanduva, José Bonifácio, Lins, Luis Antonio, Marília, Martinópolis, Mirassol, Monte Aprazível, Novo Horizonte, Olímpia, Ourinhos, Palmital, Penápolis, Pindorama, Pirajuí, Pompéia, Porto Epitácio, Presidente Alves, Presidente Prudente, Presidente Venceslau, Promissão, Rancharia, Regente Feijó, Santo Anastácio, São José do Rio Preto, Tamoio, Tupã, Valparaíso, Vera

Cruz; *Paraná* – Altona, Cambará, Capanema§, Jandaia, Perianito; *Santa Catarina* – São Miguel d'Oeste§; *Rio Grande do Sul* – Conceição do Arroio, São José do Norte (?); *Minas Gerais* – Alfenas§, Arceburgo, Belo Horizonte§, Burarama de Minas§, Conselheiro Pena§, Cordisburgo§, Corinto§, Cruzeiro da Fortaleza§, Curvelo§, Itambacurí§, Itanhomí, Jaboticatubas§, Januária§, Lagoa Santa§, Matozinhos§, Monjolos§, Monte Carmelo§, Montes Claros§, Oliveira§, Paracatú§, Patos de Minas§, Peçanha§, Pedro Leopoldo§, Pitanguí§, Riacho dos Machados§, Rio Casca§, Taquaraçú§, Uberaba§; *Goiás* – Itumbiara§; *Mato Grosso* – Bataguaçú, Maracajú§, Nova Andradina, Rio Brilhante.

ARGENTINA: *Misiones* – Alba Pose.

PARAGUAY: *Chaco* – Caa Guazú.

18. Lutzomyia (Pintomyia) spinosa (Floch & Abonnenc)

Phlebotomus spinosus Floch & Abonnenc, 1942 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 38: 1-3 (M*). Floch & Abonnenc, 1945 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 100: 2, 15, 19 (F*).

Pintomyia spinosa Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 104. Forattini, 1973 – "Entomologia Médica, 4º Volume": 505 (M*, F*, P, L*).

Phlebotomus sp. Floch & Abonnenc, 1942 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 38: 4-6 (F*).

Phlebotomus sp. A du Gallion, Floch, 1943 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 60: 62 (F).

PANAMA: *Darien* – Altos de Quia (Pinogana District).

COLOMBIA: *Amazonas* – Letícia; *Antioquia* – Chigorodó, Mutatá; *Boyacá* – Puerto Boyacá; *Caquetá* – Araracuara, Florencia; *Meta* – Acacías, San Martin.

FRENCH GUYANA: *Cayenne* – Cabassou, Crique Anguille, Gallion; *Approuague* – Balourou, Conori, Machicou, Souvenir; *Iracoubo* – Crique Blanche; *Mana* – Corocibo; *Oyapock* – Maripa; *Sinnamary* – Saut Tigre.

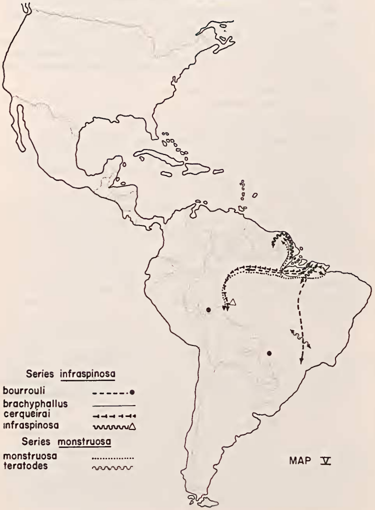
BRAZIL: *Roraima* – Caracaraí; *Amazonas* – Manaus§; *Pará* – Irituia§, Marabá; *Maranhão* – Cururupú§; *Minas Gerais* – Corinto§, Guarda Mor§, Matozinhos§, Tupaciguara§, Unaí§, Vazante§; *Goiás* – Amaro Leite§, Itumbiara§, Sítio d'Abadia§; *Mato Grosso* – Diamantino§.

Subgenus EVANDROMYIA Mangabeira

(Map V)

Evandromyia Mangabeira, 1941 – *Memórias do Instituto Oswaldo Cruz*, 36, 216 (subgenus, of the genus *Phlebotomus*, defined with *Flebotomus infraspinosus* Mangabeira as the type species). Barretto, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo*, 4: 93 (subgenus, of the genus *Lutzomyia*, defined). Theodor, 1965 – *Journal of Medical Entomology*, 2: 190 (subgenus defined).

Subgenus EVANDROMYIA


Series infraspinosa
bourrouli
brachyphallus
cerqueirai
infraspinosa
Series monstruosa
monstruosa
teratodes

MAP V

Lutzomyia (subgenus, *pro parte*) Forattini, 1971 – *Papéis Avulsos de Zoologia,* **24:** 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 249, 251, 257.
Pressatia (genus, *pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 518, 519.

Fifth palpal segment long, greater than the combined lengths of palpal segments 3 and 4, approaching the lengths of segments 2, 3 and 4 combined.

Cibarium of the female with four horizontal teeth and a few small vertical teeth; pigment patch well or poorly defined; cibarial arch complete. Body of the spermatheca elongate.

Dististyle of the male with four well-developed spines and a subterminal seta. Basistyle usually with an inner basal tuft of hairs arising from a small chitinized ridge. Paramere partly chitinized. Lateral lobe long, equal to or greater than the length of the basistyle.

The subgenus is separated into two series.

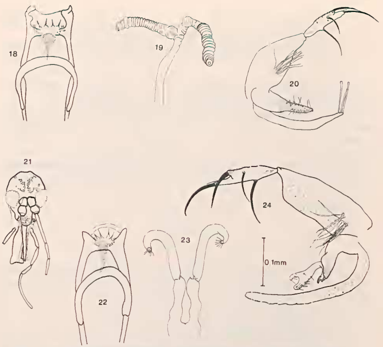
Series *infraspinosa*

(Figs. 18-20)

Body of the spermatheca of the female weakly or strongly annulated; individual spermathecal duct short; common duct long. Paramere of the male simple or bifurcated; dorsal tip of the lateral lobe armed with 2-3 spatulate hairs.

19. **Lutzomyia (Evandromyia) bourrouli** (Barretto & Coutinho)
    Phlebotomus bourrouli Barretto & Coutinho, 1941 – *Papéis Avulsos de Departamento de Zoologia, Secretaria da Agricultura, São Paulo,* **1:** 227-230, Plates II, III (M*, F*).
    Lutzomyia (Lutzomyia) bourrouli Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 249 (M*, F*).
    Flebotomus pinottii Damasceno & Arouck, 1956 – Mimeograph of a paper presented at *XIII Congresso Brasileiro de Higiene*: 1-5, Plate I (M*).
    Lutzomyia (Evandromyia) aroucki Barretto, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo,* 4: 93 (new name for *Flebotomus pinottii* Damasceno & Arouck, *nec* Lucena).
    Lutzomyia aroucki Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 103.
    BRAZIL: *Amazonas* – Manaus§; *Pará* – Acará (Igarapé Yassú), Belém§; *Acre* – Rio Branco§; *Maranhão* – São Luiz§; *São Paulo* – Palmeiras; *Goiás* – Porto Nacional§; *Mato Grosso* – Anhanduí§.

20. **Lutzomyia (Evandromyia) brachyphallus** (Mangabeira)
    Flebotomus (Evandromyia) brachyphallus Mangabeira, 1941 – *Memórias do Instituto Oswaldo Cruz,* 36: 219-222 (M*).
    Lutzomyia brachyphalla Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 103.



Figs. 18-24. Subgenus *Evandromyia*, series *infraspinosa* (18-20) and series *monstruosa* (21-24). *L. bourrouli*: female – cibarium (18), spermathecae and ducts (19); male – genitalia (20). *L. teratodes*: female – head (21), cibarium (22), spermathecae and ducts (23); male – genitalia (24).

Lutzomyia (Lutzomyia) brachyphalla Forattini, 1973 – "Entomologia Médica, 4º Volume": 249, 251 (M*).

FRENCH GUYANA: *Cayenne* – Baduel, Crique Anguille; *Haut Mana* – Souvenir; *Oyapock* – Maripa, Saint Georges.

BRAZIL: *Pará* – Abaetetuba, Belém, Marabá, Peixe Boi, São Domingos do Capim.

21. Lutzomyia (Evandromyia) cerqueirai (Causey & Damasceno)

Flebotomus cerqueirai Causey & Damasceno, 1945 – *Memórias do Instituto Oswaldo Cruz*, **42**: 645-648 (M*).

Lutzomyia cerqueirai Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 103. Forattini, 1973 – "Entomologia Médica, 4º Volume": 351-352 (M*).

BRAZIL: *Amazonas* – Coarí, Fonte Boa, Manaus§; *Rondônia* – Guajará Mirim§; *Pará* – Belém, João Coelho, São Domingos do Capim, São Miguel do Guamá.

22. Lutzomyia (Evandromyia) infraspinosa (Mangabeira)

Flebotomus (Evandromyia) infraspinosus Mangabeira, 1941 — *Memórias do Instituto Oswaldo Cruz,* 36: 216-219 (M*).

Phlebotomus infraspinosus Floch & Abonnenc, 1943 — *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication N° 61: 18-20 (F*).

Lutzomyia (Lutzomyia) infraspinosa Forattini, 1971 — *Papéis Avulsos de Zoologia,* 24: 99. Forattini, 1973 — "Entomologia Médica, 4° Volume": 257 (M*, F*).

FRENCH GUYANA: *Cayenne* — Baduel, Cabassou, Crique Anguille, La Chaumière, Matoury, Montabo, Rorota; *Haute Approuague* — Sapocaye, Saut Canori; *Haute Mana* — Souvenir.

SURINAM: Berg en Dal.

BRAZIL: *Amapá* — Macapá; *Pará* — Abaetetuba, Belém, João Coelho, Marabá, Ourém, Peixe Boi, São Domingos do Capim; *Rondônia* — Porto Velho§.

Series *monstruosa*

(Figs. 21-24)

Body of the spermatheca of the female flask-shaped with smooth walls; individual spermathecal duct long; common duct short or absent. Paramere of the male with three branches; lateral lobe unarmed.

23. Lutzomyia (Evandromyia) monstruosa (Floch & Abonnenc)

Phlebotomus monstruosus Floch & Abonnenc, 1944 — *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication N° 80: 1-2, 15 (M*).

Lutzomyia monstruosa Forattini, 1971 — *Papéis Avulsos de Zoologia,* 24: 103.

Pressatia monstruosa Forattini, 1973 — "Entomologia Médica, 4° Volume": 518 (M*, F*).

Phlebotomus falciformis Floch & Abonnenc, 1944 — *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication N° 83: 6-7, 11 (F*).

Lutzomyia falciformis Fraiha, Shaw & Lainson, 1970 — *Revista de Saúde Pública,* 4: 215 (synonymy).

Pressatia falciformis Forattini, 1971 — *Papéis Avulsos de Zoologia,* 24: 107.

FRENCH GUYANA: *Approuague* — Balourou, Guillaume, Canori, Machicou; *Cayenne* — Baduel, Crique Anguille, Montabo; *Haute Mana* — Souvenir; *Oyapock* — Maripa.

BRAZIL: *Amapá* — Macapá; *Amazonas* — Manacapurú, Parintins; *Rondônia* — Guajará Mirim§; *Pará*: Belém, Marabá, Peixe Boi, São Domingos do Capim; *Maranhão* — Turiaçú§.

24. Lutzomyia (Evandromyia) teratodes Martins, Falcão & Silva

Lutzomyia teratodes Martins, Falcão & Silva, 1964 — *Revista Brasileira de Biologia,* 24: 321-323 (M*). Martins, Falcão & Silva, 1975 — *Revista Brasileira de*

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15 16

Biologia, **35**: 515-516 (F*). Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 103.

Pressatia teratodes Forattini, 1973 – "Entomologia Médica, 4° Volume": 519 (M*).

BRAZIL: *Goiás* – Itapaci§, Itumbiara§.

Subgenus PSYCHODOPYGUS Mangabeira

Psychodopygus Mangabeira, 1941 – *Memórias do Instituto Oswaldo Cruz*, **36**: 237-238 (Subgenus, of the genus *Phlebotomus*, defined with *Flebotomus unisetosus* Mangabeira as the type species). Mangabeira & Galindo, 1944 – *American Journal of Hygiene*, **40**: 190 (subgenus defined). Fairchild, 1955 – *Annals of the Entomological Society of America*, **48**: 188, 189, 190 (subgenus redefined). Barretto, 1962 – *Revista do Instituto de Medicina de São Paulo*, **4**: 93-94 (subgenus, of the genus *Lutzomyia*, defined). Theodor, 1965 – *Journal of Medical Entomology*, **2**. 188 (subgenus defined). Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 104-105 (raised to generic level). Ortiz, 1972 – *Revista del Instituto Nacional de Higiene*, **5**: 224 (subgenus, of the genus *Phlebotomus*, reviewed). Forattini, 1973 – "Entomologia Médica, 4° Volume": 388-495.

Shannonomyina Pratt, 1947 – *Proceedings of the Entomological Society of Washington*, **49**: 86 (new name for *Shannonomyia* Dyar, *nec* Alexander). Fairchild & Hertig, 1951 – *Annals of the Entomological Society of America*, **44**: 399-401.

Shannonomyia Dyar, 1929 – American Journal of Hygiene, **10**: 117 (subgenus, of the genus *Phlebotomus*, defined with *Phlebotomus panamensis* Shannon as the type species). Mangabeira, 1942 – *Memórias do Instituto Oswaldo* Cruz, **37**: 119.

Fifth palpal segment very short, clearly much shorter than the third segment and never more than twice the length of the fourth. Second and third palpal segments subequal and long.

Cibarium of the female with 4-8 (usually 4) horizontal teeth, and many vertical teeth (some being large and coarse); pigment patch often pale and poorly defined; cibarial arch complete. Body of the spermatheca composed of imbricated annulations; the walls of the individual spermathecal duct decorated with pouch-like outgrowths, transverse striations or oblique thickenings; common spermathecal duct with thin walls or transversely striated for part or all of its length.

Dististyle of the male with 1-5 spines, some being reduced to fine setae in several species. Basistyle without an inner basal tuft of hairs. Paramere simple or ornate and very complex. Lateral lobe unarmed.

The subgenus is divided into three series; three species cannot be placed conveniently in any series and are listed as "other" *Psychodopygus*.

Series *squamiventris*

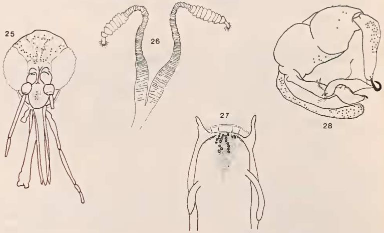
(Figs. 25-28; Map VI)

Cibarium of the female with four horizontal teeth and 9-33 vertical teeth. Body of the spermatheca with 7-9 imbricated annulations; individual spermathecal duct

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15 16

longer than the body of the spermatheca, the duct walls often with oblique thickenings, giving a "herringbone" appearance; common duct shorter than the individual ducts and with unthickened walls.

Diststyle of the male with a single well-developed terminal spine and with three fine setae near the terminal spine. Basistyle rather short and thick, with a well-defined median constriction. Paramere very complex. In one species, the dorsal surface of the distal part of the paramere bears a dense tuft of hair-like setae and there is a simple, digitiform, lateral appendage. In other species, the basal part of the paramere is very thick and there is a dorsally-directed, armed appendage.



Figs. 25-28. Subgenus *Psychodopygus*, series *squamiventris*. *L. wellcomei*: female – head (25), spermathecae and ducts (26); male – genitalia (28). *L. squamiventris*: female – cibarium (27).

25. **Lutzomyia (Psychodopygus) bernalei (Osorno-Mesa, Morales-Alarcon & de Osorno)**
Phlebotomus (Psychodopygus) bernalei Osorno-Mesa, Morales-Alarcon & de Osorno, 1966 – *Caldasia*, **10**: 30-31, 38 (M*).
Psychodopygus (Psychodopygus) bernalei Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 104. Forattini, 1973 – "Entomologia Médica, 4º Volume": 404, 406 (M*).
COLOMBIA: *Caquetá* – Araraquara.

26. **Lutzomyia (Psychodopygus) chagasi (Costa Lima)**
Flebotomus chagasi Costa Lima, 1941 – *Acta Médica*, **7**: 8, 11, 14, 16 (F).

Psychodopygus (Psychodopygus) chagasi Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 104. Forattini, 1973 – "Entomologia Médica, 4º Volume": 406-407 (M*, F*).

Flebotomus (Psychodopygus) unisetosus Mangabeira, 1941 – *Memórias do Instituto Oswaldo Cruz,* 36: 238-242 (M*).

Psychodopygus (Psychodopygus) unisetosus Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105.

COLOMBIA: *Caquetá* – Araracuara.

PERU: *Loreto* – Zungarococha.

BRAZIL: *Roraima* – Caracaraí§ *Amazonas* – Rio Negro (?), São Paulo de Olivença; *Pará* – Abaetetuba.

27. **Lutzomyia (Psychodopygus) fairtigi Martins**

Lutzomyia (Psychodopygus) fairtigi Martins, 1970 – *Proceedings of the Entomological Society of Washington,* 72: 279 (new name for *Phlebotomus squamiventris* Fairchild & Hertig, *nec* Lutz & Neiva).

Psychodopygus (Psychodopygus) fairtigi Forattini, 1973 – "Entomologia Médica, 4º Volume": 409 (M*).

Phlebotomus (Shannonomyina) squamiventris Fairchild & Hertig, 1951 – *Annals of the Entomological Society of America,* 44: 402, 407, 413, 417, 419 (M*, F*).

COLOMBIA: *Meta* – Villavicencio.

28. **Lutzomyia (Psychodopygus) maripaensis (Floch & Abonnenc)**

Phlebotomus maripaensis Floch & Abonnenc, 1946 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 140: 1-2, 5 (M*).

Psychodopygus (Psychodopygus) maripaensis Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105.

Psychodopygus maripaensis Fraiha, Shaw & Lainson, 1971 – *Memórias do Instituto Oswaldo Cruz,* 69: 497-498 (M*).

Phlebotomus squamiventris Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 83: 3-4, 17 (F*). Forattini, 1960 – *Studia Entomologia,* 3: 472-474 (F*).

Psychodopygus (Psychodopygus) squamiventris (*pro parte*) Forattini, 1971 – *Revista de Saúde Pública,* 5: 153, 154. Forattini, 1973 – "Entomologia Médica, 4º Volume": 398.

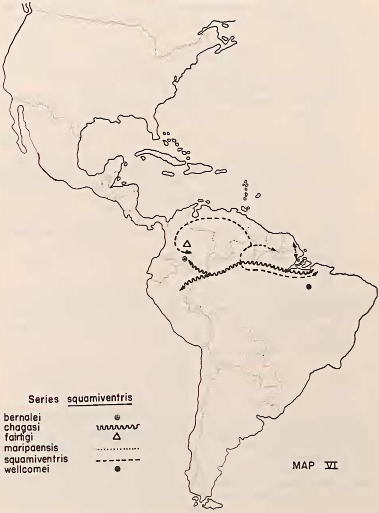
FRENCH GUYANA: *Oyapock* – Maripa.

BRAZIL: *Amapá* – Macapá.

29. **Lutzomyia (Psychodopygus) squamiventris (Lutz & Neiva)**

Phlebotomus squamiventris Lutz & Neiva, 1912 – Memórias do Instituto Oswaldo Cruz, 4: 89 (F).

Subgenus **PSYCHODOPYGUS** (in part)


Series squamiventris
bernalei ●
chagasi ～～～
fairtigi △
maripaensis ……………
squamiventris - - - - - -
wellcomei ●

MAP VI

Lutzomyia (Psychodopygus) squamiventris Martins, Maciel & Silva, 1968 – *Boletim do Museu de História Natural da Universidade Federal de Minas Gerais*, Zoologia N° 1: 10-11 (F*).

Psychodopygus (Psychodopygus) squamiventris Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4° Volume": 398-401 (F* only). (M described and illustrated by Forattini (1973) = *L. maripaensis*).

Phlebotomus squamipennis (Lapsus calami) Lutz & Neiva, 1912 – *Memórias do Instituto Oswaldo Cruz*, 4: 94 (M, F).

Flebotomus (Psychodopygus) complexus Mangabeira, 1941 – *Memórias do Instituto Oswaldo Cruz*, 36: 242-245 (M*).

Psychodopygus (Psychodopygus) complexus Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4° Volume": 407 (M*).

Psychodopygus complexus Ward & Ready, 1975 – *Journal of Entomology* (Series A), 50: 128 (E*).

COLOMBIA: *Antioquia* – Anorí, Chigorodó, Mutatá; *Bolivar* – Simití; *Boyacá* – Puerto Boyacá; *Caldas* – Victoria; *Caquetá* – Solano; *Norte de Santander* – Cúcuta; *Santander* – San Vicente de Chucurí.

VENEZUELA: *Aragua* – Maracay; *Bolivar* – Gran Sabana.

GUYANA: *Kaietur Plateau.*

SURINAM: 2 km. from Pico Ricardo Franco (near the Brazil/Surinam frontier); Berg en Dal.

BRAZIL: *Roraima* – Caracaraí§, Boa Vista§; *Amazonas* – Manaus§; *Pará* – Abaetetuba, Belém, Rio Trombetas.

30. **Lutzomyia (Psychodopygus) wellcomei** (Fraiha, Shaw & Lainson)

Psychodopygus wellcomei Fraiha, Shaw & Lainson, 1971 – *Memórias do Instituto Oswaldo Cruz*, 69: 490-495, 497 (M*, F*). Ward, 1972 – *Memórias do Instituto Oswaldo Cruz*, 70: 15-28 (P*, L*, E).

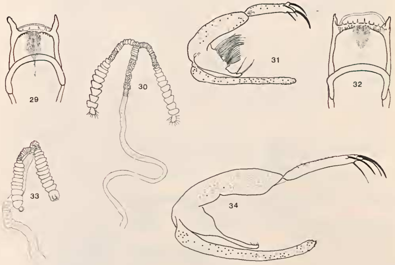
BRAZIL: *Pará* – Marabá (Serra dos Carajás).

Series *panamensis*

(Figs. 29-31; Map VII)

Cibarium of the female with four horizontal teeth, sometimes straight and directed posteriorly but, in some species, inwardly inclined; many vertical teeth with the larger, coarser teeth roughly arranged in two longitudinal rows about the midline and finer, smaller teeth forming a curved transverse row near the horizontal teeth. Spermatheca composed of 5-13 imbricated annulations; individual spermatheca duct shorter than the body of the spermatheca; common duct longer than the individual ducts, sometimes longer than the combined lengths of the spermatheca and individual duct; common duct transversely striated for part or all of its length.

Diststyle of the male with 4-5 spines, one frequently being smaller than the rest. Paramere broad based with a narrow distal portion, bearing a distal, lateral or dorsal digitiform arm and bearing one or more tufts of blade-like, hair-like or spine-like setae.



Figs. 29-34. Subgenus *Psychodopygus,* series *panamensis* (29-31) and series *arthuri* (32-34). *L. panamensis*: female – cibarium (29); male – genitalia (31). *L. paraensis*: female – spermathecae and ducts (30). *L. arthuri*: female – cibarium (32), spermathecae and ducts (33); male – genitalia (34).

31. Lutzomyia (Psychodopygus) amazonensis (Root)

Phlebotomus amazonensis Root, 1934 – *American Journal of Hygiene,* 20:235, 244 (F*).

Lutzomyia (Psychodopygus) amazonensis Llanos, Martins & Silva, 1975 – *Revista Brasileira de Biologia,* 35:665-668 (M*, F*).

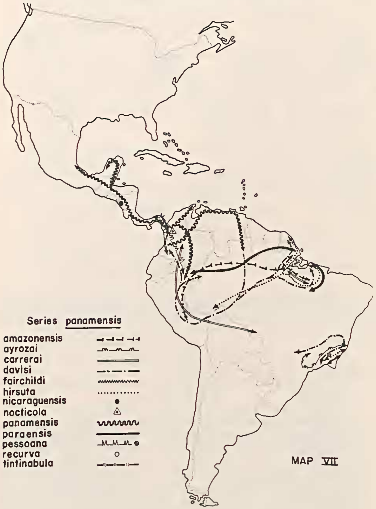
Psychodopygus (Psychodopygus) amazonensis Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 104. Forattini 1973 – "Entomologia Médica, 4º Volume": 401 (F*).

TRINIDAD: Bush Bush Forest (?).

BRAZIL: *Amapá* – Macapá; *Roraima* – Caracaraí§; *Pará* – Marabá; *Amazonas* – Manaus§.

PERU: *Cuzco* – Pilcopata§; *Loreto* – Iquitos.

Subgenus **PSYCHODOPYGUS** (in part)


Series panamensis
amazonensis
ayrozai
carrerai
davisi
fairchildi
hirsuta
nicaraguensis ●
nocticola ◬
panamensis
paraensis
pessoana ●
recurva ○
tintinabula

MAP VII

32. Lutzomyia (Psychodopygus) ayrozai (Barretto & Coutinho)

Phlebotomus ayrozai Barretto & Coutinho, 1940 – *Anais da Faculdade de Medicina da Universidade de São Paulo,* 16: 131-134, 141 (M*). Barretto & Coutinho, 1943 – *Revista Brasileira de Biologia,* 3: 183-185 (F*).

Psychodopygus (Psychodopygus) ayrozai Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 104. Forattini, 1973 – "Entomologia Médica, 4° Volume": 404 (M*, F*).

COLOMBIA: *Valle* – Rio Raposo (?) (after Barretto, 1964; ? = *tintinabula*).

FRENCH GUYANA: *Cayenne* – Baduel (?) (after Floch & Abonnenc, 1952).

BRAZIL: *Espírito Santo* – Linhares§; *Rio de Janeiro* – Duque de Caxias§, Magé§, Nova Iguaçú§, Petrópolis, Rezende, Vassouras§; *São Paulo* – Casa Grande, Praínha, São José dos Campos, São Paulo, Una; *Minas Gerais* – Oliveira§, Sabará§, Três Corações§, Virginópolis§.

33. Lutzomyia (Psychodopygus) carrerai (Barretto)

Flebotomus carrerai Barretto, 1946 – *Anais da Faculdade de Medicina da Universidade de São Paulo,* 22: 286-290 (M*, F*).

Psychodopygus (Psychodopygus) carrerai Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 104.

Lutzomyia carrerai Martins, Falcão & Silva, 1973 – *Revista Brasileira de Biologia,* 33: 416 (M), 417 (M in key). (Revalidation of species).

Psychodopygus carrerai Ward & Ready, 1975 – *Journal of Entomology* (Series A), 50: 128 (E*).

Psychodopygus (Psychodopygus) paraensis (*pro parte*). Forattini, 1973 – "Entomologia Médica, 4° Volume": 413.

COLOMBIA: *Meta* – Restrepo.

PERU: *Cuzco* – Pilcopata§.

BRAZIL: *Pará* – Altamira, Marabá; *Mato Grosso* – Mato Grosso§.

34. Lutzomyia (Psychodopygus) davisi (Root)

Phlebotomus davisi Root, 1934 – *American Journal of Hygiene,* 20: 235, 242-244 (M* only; F* = *hirsuta*).

Psychodopygus (Psychodopygus) davisi Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4° Volume": 407, 409 (M* only; F* = *hirsuta*).

Lutzomyia (Psychodopygus) davisi Martins, Falcão & Silva, 1973 – *Revista Brasileira de Biologia,* 33: 421-422 (F*).

Psychodopygus davisi Ward & Ready, 1975 – *Journal of Entomology,* 50: 128 (E*).

Flebotomus (Shannonomyia) rooti Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* 37: 112-115, 119 (M*).

COLOMBIA: *Amazonas* – Letícia; *Caquetá* – Florencia.

FRENCH GUYANA: Crique Anguille.

PERU: *Cuzco* – Pilcopata§, Quellouno§; *Loreto* – Quistococha; *Madre de Dios* – Mancilla (Alto Madre de Dios)§.

BRAZIL: *Roraima* – Caracaraí§; *Amapá* – Macapá; *Amazonas* – Manicoré; *Rondônia* – Guajará Mirim§; *Pará* – Abaetetuba, Ananindeua§, Belém, João Coelho, Marabá, Santarém, São Miguel do Guamá; *Espírito Santo* – Aracruz§, Colatina§, Linhares§; *Rio de Janeiro* – Duque de Caxias§, Magé§, Nova Iguaçú§, Vassouras§; *Minas Gerais* – Conceição§, Dom Joaquim§, Guarda Mór§, Marlieria§, Paracatú§, Volta Grande§; *Goiás* – Itumbiara§, Mineiros.

BOLIVIA: *Pando* – Villa Bella§.

35. Lutzomyia (Psychodopygus) fairchildi Barretto

Lutzomyia (Psychodopygus) fairchildi Barretto, 1966 – *Papéis Avulsos do Departamento de Zoologia, Secretaria da Agricultura, São Paulo,* 18: 136-140 (M*, F*).

Psychodopygus (Psychodopygus) fairchild Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105.

Lutzomyia fairchildi Martins, Falcão & Silva, 1973 – *Revista Brasileira de Biologia,* 33: 415 (M, F), 417 (M in key). (Revalidation of species).

Psychodopygus (Psychodopygus) paraensis (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 413.

BRAZIL: *Espírito Santo* – Linhares (Sooretama)§; *Rio de Janeiro* – Rezende (Itatiaia).

36. Lutzomyia (Psychodopygus) hirsuta (Mangabeira)

Flebotomus (Shannonomyia) hirsutus Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* 37: 116-118 (M*).

Psychodopygus (Psychodopygus) hirsutus Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 412 (M*).

Phlebotomus davisi (*pro parte*) Root, 1934 – *American Journal of Hygiene,* 20: 242-244 (F* only; sexes wrongly associated). Forattini, 1959 – *Arquivos da Faculdade de Higiene e Saúde Pública,* 13: 161 (F). Forattini, 1960 – *Studia Entomologia,* 3: 469-470 (F*).

Flebotomus davisi Coutinho, 1939 – *Boletim Biologica* (N.S.), 1: 182 (F*).

Psychodopygus (Psychodopygus) davisi Forattini, 1973 – "Entomologia Médica, 4º Volume": 407, 409 (F* only).

Phlebotomus sp. II de Baduel, Floch, 1947 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 151: 152 (M).

Phlebotomus colas-belcouri Floch & Chassignet, 1947 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 152: 1-3 (M*).

FRENCH GUYANA: *Cayenne* – Baduel.

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15 16

BRAZIL: *Amapá* – Macapá; *Amazonas* – Manicoré; *Acre* – Rio Branco§; *Pará* – Abaetetuba, João Coelho, Marabá; *Espírito Santo* – Colatina§; *Rio de Janeiro* – Nova Iguaçú§, Petrópolis§.

37. Lutzomyia (Psychodopygus) nicaraguensis (Fairchild & Hertig)

Phlebotomus (Psychodopygus) nicaraguensis Fairchild & Hertig, 1961 – *Proceedings of the Entomological Society of Washington,* 63: 25-27 (M*).

Psychodopygus (Psychodopygus) nicaraguensis Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 413 (M*).

NICARAGUA – Villa Somoza.

38. Lutzomyia (Psychodopygus) nocticola Young

Lutzomyia (Psychodopygus) nocticola Young, 1973 – *Florida Entomologist,* 56: 109-111 (M*, F*).

COLOMBIA: *Antioquia* – Saragoza (near Rio Anori).

39. Lutzomyia (Psychodopygus) panamensis (Shannon)

Phlebotomus panamensis Shannon, 1926 – *Journal of the Washington Academy of Sciences,* 16: 192 (M, F). Mirsa, 1951 – *Revista de Sanidad y Asistencia Social,* 16: 561-572 (M*, F*, P*, L*, E*).

Phlebotomus (Shannonomyia) panamensis Dyar, 1929 – *American Journal of Hygiene,* 10: 117.

Phlebotomus (Shannonomyina) panamensis Fairchild & Hertig, 1951 – *Annals of the Entomological Society of America,* 44: 405, 407, 411, 415, 417, 419 (M*, F*).

Psychodopygus (Psychodopygus) panamensis Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 393-395 (M*, F*, P, L*).

Phlebotomus squamiventris Costa Lima, 1932 – *Memórias do Instituto Oswaldo Cruz,* 26: 25.

Phlebotomus davisi Pifano, 1943 – *Boletín de Entomologia Venezolana,* 2: 100, 101. Ortiz, 1947 – *Boletín del Laboratorio de la Clínica "Luis Razetti",* 15: 521.

MEXICO: *Campeche* – Escárcega, Matamoros; *Chiapas* – Palenque; *Quintana-Roo* – Carrillo Puerto, Rancho La Ceiba; *Tabasco* – Arroyo Expangale; *Vera Cruz* – Catemaco.

BELIZE: Augustine§, Caves Branch§, Central Farm§, mile 8 & mile 10-11 Chiquibul Road§, Cool Shade, Gallon Jug§, Guacamallo§, mile 48 Hummingbird Highway§, Millionario§, Mountain Pine Ridge§, Never Delay§, Never Delay Road§, Putchetuk, Rio Grande (8 km. north of Punta Gorda)§, Roaring River§, San Antonio (Cayo District)§, San Ignacio – Bullet Tree Falls road§, Sayab Camp, Sibun Camp§, Spanish Lookout§.

NICARAGUA: Villa Somoza.

COSTA RICA: Jiménez de Guápiles, Suerre de Guápiles, Turrialba, Valle Hermoso, Wauchope.

PANAMA: *Bocas del Toro* – Almirante, Rio Changuena; *Colon* – Quebrada Bonita; *Panama* – Bayano River, Cabina, Old Panama, Porto Belo, Santa Rita; *Canal Zone* – Barro Colorado Island, Cano Saddle, Chagres River, Cocoli, Fort Kabbe Military Reservation, Fort Sherman, Gatun Lake, Juan Mina, Limbo Field Station.

COLOMBIA: *Antioquia* – Mutatá; *Boyacá* – Puerto Boyacá; *Caldas* – Victoria; *Guajira* – Maicao; *Meta* – Villavicentio; *Norte de Santander* – Cúcuta; *Santander* – Socorro; *Valle* – Buenaventura, Rio Raposo.

VENEZUELA: *Aragua* – Choroni, Ocumare de la Costa, San Mateo; *Bolivar* – Gran Sabana; *Falcón* – Mene de Mauros; *Guárico* – Altagracia de Orituco; *Lara* – Barquisimeto; *Miranda* – Guatopo, Ocumare del Tuy; *Sucre* – Cumanacoa; *Yaracuy* – Alparton, San Felipe; *Zulia* – Zipayare.

PERU: *Loreto* – Iquitos (?).

BRAZIL: *Roraima* – Caracaraí§.

40. Lutzomyia (Psychodopygus) paraensis (Costa Lima)

Flebotomus (Shannonomyia) paraensis Costa Lima, 1941 – *Acta Médica*, 7: 7, 16 (M*).

Flebotomus paraensis Barretto, 1946 – *Anais da Faculdade de Medicina da Universidade de São Paulo*, 22: 283-286 (M*).

Phlebotomus (Shannonomyina) paraensis Bruijning, 1957 – *Documenta de Medicina Geographica et Tropica*, 9: 231, 233, 236 (F*).

Psychodopygus (Psychodopygus) paraensis Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 413, 415 (M*, F*).

Lutzomyia (Psychodopygus) paraensis Martins, Falcão & Silva, 1973 – *Revista Brasileira de Biologia*, 33: 413 (species redefined).

Psychodopygus paraensis Ward & Ready, 1975 – *Journal of Entomology* (Series A), 50: 128 (E*).

Flebotomus ayrozai (pro parte) Barretto, 1947 – *Arquivos de Zoologia do Estado de São Paulo*, 5: 188.

SURINAM: 2 km. from Pico Ricardo Franco, near Brazilian frontier.

COLOMBIA: *Caquetá* – Araraquara, Solano (?).

PERU: *Loreto* – San Antonio (Nauta).

BRAZIL: *Amapá* – Macapá; *Amazonas* – Coarí; *Pará* – Belém, Irituia§, Marabá, Paragominas.

41. Lutzomyia (Psychodopygus) pessoana (Barretto).

Sergentomyia pessoana Barretto, 1955 – *Revista do Hospital das Clínicas, São Paulo*, 10: 247-249 (M*).

Psychodopygus (Psychodopygus) pessoanus Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105.
Lutzomyia pessoana Martins, Falcão & Silva, 1973 – *Revista Brasileira de Biologia,* 33: 413-415 (species revalidated).
Phlebotomus (Shannonomyina) paraensis Fairchild & Hertig, 1951 – *Annals of the Entomological Society of America,* 44: 405, 406, 409, 411, 413, 415, 417, 419 (M*, F*).
Psychodopygus (Psychodopygus) paraensis (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 413.
PANAMA: *Bocas del Toro* – Changuena River; *Colon* – Achiote, Cacique; *Chiriqui* – Corcha (Yellow Fever Station X); *Darien* – Altos de Quia (Pinogana District); *Panama* – Arraijan, Cerro Campana, Rio Pequeni, Santa Rita; *Canal Zone* – Gatun Lake, Juan Mina, Limbo Field Station.
COLOMBIA: *Valle* – Buenaventura, Palmera del Pacifico, Rio Raposa.
PERU: *Loreto* – San Antonio (Nauta).
BRAZIL: *Rio de Janeiro* – Rezende (Itatiaia).

42. Lutzomyia (Psychodopygus) recurva Young
Lutzomyia (Psychodopygus) recurva Young, 1973 – *Florida Entomologist,* 56: 106-108 (M*, F*).
COLOMBIA: *Chocó* – Rio Curiche.

43. Lutzomyia (Psychodopygus) tintinabula Christensen & Fairchild
Lutzomyia (*Psychodopygus*) *tintinabula* Christensen & Fairchild, 1971 – *Journal of Medical Entomology,* 8: 301 (M*, F*).
PANAMA: *Darien* – Altos de Quia (Pinogana District).
COLOMBIA: *Caquetá* – Araracuara; *Valle* – Lower Anchicaya Dam.

Series *arthuri*

(Figs. 32-34; Map VIII)

Cibarium of the female with 4-8 horizontal teeth and many vertical teeth. Body of the spermatheca with 6-11 imbricated annulations; individual spermathecal duct equal to or shorter than the body of the spermatheca; common duct longer than the combined lengths of the body of the spermatheca and the individual duct.

Dististyle with 2-4 well-developed spines. Paramere usually simple but bearing a dorsal tuft of hairs in one species.

44. Lutzomyia (Psychodopygus) arthuri (Fonseca)
Flebotomus arthuri Fonseca, 1936 – *Revista de Entomologia,* 6: 324 (F*). Fonseca, 1939 – *Memórias do Instituto Butantan,* 12: 181-183 (M*).
Phlebotomus arthuri Barretto, 1941 – *Anais da Faculdade de Medicina da Universidade de São Paulo,* 17: 402-407, Plates I, II, XXXIII-XXXVI, LI (P*, L*, E*).

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15 16

Psychodopygus (Psychodopygus) arthuri Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 104. Forattini, 1973 – "Entomologia Médica, 4º Volume": 403-404 (M*, F*, P*, L*).

Flebotomus rachoui Damasceno & Arouck, 1956 – Mimeograph of a paper presented at *XIII Congresso Brasileiro de Higiene*: 3-5, Plate I (M*). (New synonymy).

Psychodopygus (Psychodopygus) rachoui Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 415 (M*).

SURINAM: Krapawa Creek (?) (after Bruijning, 1957).

BRAZIL: *Rio de Janeiro* – Petrópolis; *São Paulo* – Campinas, Casa Grande, Jacareí, Mogí das Cruzes, Osasco, Perús, Piedade, Porto Feliz, Salesópolis, Santo Amaro, São José dos Campos, São Paulo, São Roque, Sorocaba, Tietê, Una; *Minas Gerais* – Belo Horizonte§, Belo Vale§, Caeté§, Entre Rios de Minas§, Nova Lima§, Pirapora§, Pitangui§, Sabará§, Santa Maria de Itabira§.

45. **Lutzomyia (Psychodopygus) bispinosa** Fairchild & Hertig

Phlebotomus (Shannonomyina) bispinosus Fairchild & Hertig, 1951 – *Annals of the Entomological Society of America,* 44: 409, 410, 411, 415, 417, 419 (M*, F*).

Psychodopygus (Psychodopygus) bispinosus Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 104. Forattini, 1973 – "Entomologia Médica, 4º Volume": 406 (M*, F*).

BELIZE: mile 8 Chiquibul Road§, Gallon Jug§, Cool Shade, Guacamallo§, Millionario, Roaring River§, Sayab Camp.

HONDURAS: Tela (Lancetilla Valley).

NICARAGUA: Villa Somoza.

PANAMA: *Panama* – La Victoria (Cerro Jefe); *Canal Zone* – Juan Mina.

BRAZIL: *Amapá* – Macapá; *Pará* – Marabá.

46. **Lutzomyia (Psychodopygus) lloydi** (Antunes)

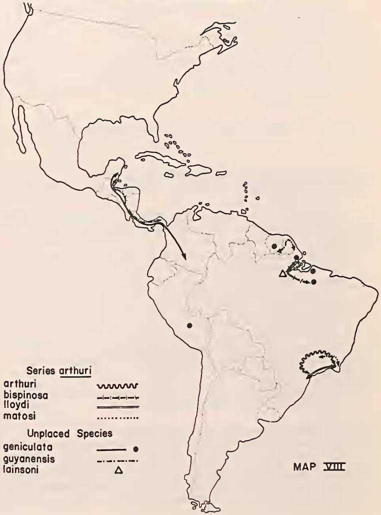
Flebotomus lloydi Antunes, 1937 – *Revista de Biologia e Higiene,* 8: 24 (F*). Coutinho, 1940 – *Arquivos de Zoologia do Estado de São Paulo,* 1: 331-332, 337 (M*).

Phlebotomus lloydi Coutinho, 1940 – *Arquivos de Higiene e Saúde Pública,* 5: 31, 35 (M*).

Psychodopygus (Psychodopygus) lloydi Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 412-413 (M*, F*).

BRAZIL: *Rio de Janeiro* – Petrópolis; *São Paulo* – Campinas, Mogí das Cruzes, Osasco, Perús, Piedade, Salesópolis, Santo Amaro, São José dos Campos, São Paulo, Tietê.

Subgenus PSYCHODOPYGUS (in part)


Series arthuri
arthuri
bispinosa
lloydi
matosi
Unplaced Species
geniculata ●
guyanensis
lainsoni △

MAP VIII

47. **Lutzomyia (Psychodopygus) matosi** (Barretto & Zago)

Sergentomyia matosi Barretto & Zago, 1956 – *Revista Brasileira de Entomologia*, 5: 180-183 (M*).

Lutzomyia (Psychodopygus) matosi Barretto, 1966 – *Papéis Avulsos do Departamento de Zoologia, Secretaria da Agricultura, São Paulo*, 18: 135-137, 143, 144 (F*).

Psychodopygus (Psychodopygus) mattosi (*sic*) Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105.

Psychodopygus (Psychodopygus) matosi Forattini, 1973 – "Entomologia Médica, 4º Volume": 413 (M*, F*).

BRAZIL: *Rio de Janeiro* – Petrópolis, Rezende (Itatiaia), Vassouras§; *Minas Gerais* – Gonzaga§.

Other species of the subgenus *Psychodopygus*
(Figs. 35-37; Map VIII)

48. **Lutzomyia (Psychodopygus) geniculata** (Mangabeira)

Flebotomus (Psychodopygus) geniculatus Mangabeira, 1941 – *Memórias do Instituto Oswaldo Cruz*, 36: 245-250 (M*).

Phlebotomus (Shannonomyina) geniculatus Fairchild & Hertig, 1951 – *Annals of the Entomological Society of America*, 44: 401, 403, 404, 407, 411, 412, 413, 415, 417, 419 (M*, F*).

Psychodopygus (Psychodopygus) geniculatus Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105.

Psychodopygus (Psychodopygus) guyanensis (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 409, 411-412 (M*, P*, L*).

BELIZE: mile 8 Chiquibul Road§, Cool Shade, mile 48 Hummingbird Highway§, Guacamallo, Roaring River§, Sayab Camp.

PANAMA: *Bocas del Toro* – Almirante; *Panama* – La Victoria (Cerro Jefe); *Canal Zone* – Mojinga Swamp, Limbo Field Station.

COLOMBIA: *Caquetá* – Solano, Tres Esquinas.

SURINAM: Apsike.

PERU: *Cuzco* – Pilcopata§.

BRAZIL: *Amapá* – Macapá; *Pará* – Belém, Marabá.

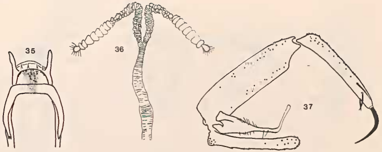
49. **Lutzomyia (Psychodopygus) guyanensis** (Floch & Abonnenc)

Phlebotomus guyanensis Floch & Abonnenc, 1941 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 15: 18-20 (F*).

Psychodopygus (Psychodopygus) guyanensis Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 409-411 (F* only; M*, P* & L* = *geniculata*).

SURINAM: Krapawa Creek (near Brazilian Frontier).

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15 16



Figs. 35-37. Subgenus *Psychodopygus*. *L. geniculata*: female – cibarium (35), spermathecae and ducts (36); male – genitalia (37).

FRENCH GUYANA: *Caux; Cayenne* – Crique Anguille; *Haut Mana* – Souvenir; *Iracoubo* – Crique Blanche; *Moyenne Mana* – Placer P. I.

50. Lutzomyia (Psychodopygus) lainsoni (Fraiha & Ward)

Psychodopygus lainsoni Fraiha & Ward, 1974 – *Bulletin of Entomological Research*, 64: 209-211 (M*, F*), Ward & Ready, 1975 – *Journal of Entomology* (Series A), 50: 128 (E*).

BRAZIL: *Pará* – km. 46, Altamira – Itaituba, Transamazonica Highway.

Subgenus VIANNAMYIA Mangabeira

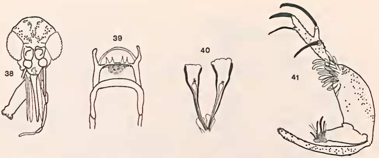
(Figs. 38-41; Map IX)

Viannamyia Mangabeira, 1941 – *Memórias do Instituto Oswaldo Cruz*, 36: 251 (subgenus, of the genus *Phlebotomus*, defined with *Flebotomus tuberculatus* Mangabeira as the type species). Barretto, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo*, 4: 94 (subgenus, of the genus *Lutzomyia*, defined). Theodor, 1965 – *Journal of Medical Entomology*, 2: 190 (subgenus defined). Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 106 (raised to generic level). Forattini, 1973 – "Entomologia Médica, 4º Volume": 506-511.

Fifth palpal segment relatively short, shorter or only slightly longer than the third segment, and always shorter than the combined lengths of segments 3 and 4.

Cibarium of the female with four horizontal teeth, several rows of vertical teeth and sometimes, fine lateral teeth. Body of the spermatheca oval or globose, without annulations, without a "head"; individual spermathecal duct short and very narrow; common duct absent; each spermatheca and its duct enclosed by a cylindrical, chitinized apodeme.

SciELO



Figs. 38-41. Subgenus *Viannamyia. L. tuberculata*: female – head (38), cibarium (39), spermathecae and ducts (40); male – genitalia (41).

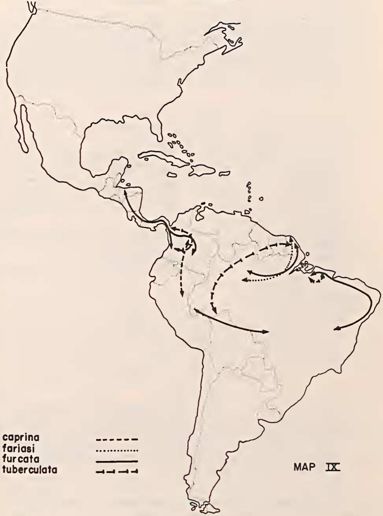
Dististyle of the male bifurcated or with an elongate tubercle, and with four well-developed spines; subterminal seta absent. Basistyle with a group of hairs distally but without an inner basal tuft. Paramere with modified setae near the distal tip of the dorsal surface. Lateral lobes unarmed.

51. **Lutzomyia (Viannamyia) caprina Osorno-Mesa, Morales-Alarcon & de Osorno**
Lutzomyia caprina Osorno-Mesa, Morales-Alarcon & de Osorno, 1972 – *Revista Brasileira de Biologia,* 32: 437-441 (M*, F*).
COLOMBIA: Boyacá – Puerto Boyacá; *Caldas* – Victoria.
PERU: *Loreto* – Pucallpa§.

52. **Lutzomyia (Viannamyia) fariasi (Damasceno, Causey & Arouck)**
Flebotomus fariasi Damasceno, Causey & Arouck, 1945 – *Memórias do Instituto Oswaldo Cruz,* 43: 19, 20-22 (M*).
Viannamyia fariasi Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 106. Forattini, 1973 – "Entomologia Médica, 4º Volume": 507 (M*).
FRENCH GUYANA: Tonate.
BRAZIL: *Amazonas* – Manaus§; *Pará* – Santarém.

53. **Lutzomyia (Viannamyia) furcata (Mangabeira)**
Flebotomus (Viannamyia) furcatus Mangabeira, 1941 – *Memórias do Instituto Oswaldo Cruz,* 36: 256-260 (M*).
Viannamyia furcata Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 106. Forattini, 1973 – "Entomologia Médica, 4º Volume": 507, 508 (M*, F*, P*, L*).
Phlebotomus arborealis Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 81: 8-9, 17 (F*).
HONDURAS: Tela (Lancetilla Valley).

Subgenus VIANNAMYIA


caprina
fariasi
furcata
tuberculata

MAP IX

PANAMA: *Darien* – Altos de Quia (Pinigana District); *Canal Zone* – Juan Mina.
COLOMBIA: *Antioquia* – Chigorodó; *Boyacá* – Puerto Boyacá; *Caquetá* – Florencia, Solana; *Santander* – San Vicente de Chucurí; *Valle* – Buenaventura.
FRENCH GUYANA: *Cayenne* – Baduel.
PERU: *Madre de Dios* – Iberia§.
BRAZIL: *Roraima* – Caracaraí§; *Amapá* – Macapá; *Amazonas* – Manaus§; *Acre* – Cruzeiro do Sul§, Rio Branco§; *Rondônia* – Guajará Mirim§; *Pará* – Belém, Igarapé Açú, Irituia, João Coelho, Ourém, Peixe Boi, São Domingos do Capim, Timboteua; *Maranhão* – Coroatá§, Cururupú§, São Luiz§; *Pernambuco* – Recife§; *Bahia* – Barreiras§; *Mato Grosso* – Barra do Garças§, Mato Grosso§.

54. **Lutzomyia (Viannamyia) tuberculata (Mangabeira)**
Flebotomus (Viannamyia) tuberculatus Mangabeira, 1941 – *Memórias do Instituto Oswaldo Cruz*, 36: 251-256 (M*).
Viannamyia tuberculata Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 106. Forattini, 1973 – "Entomologia Médica, 4º Volume": 510 (M*, F*).
Phlebotomus sp. X, Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 81: 10-11, 17 (F*).
Lutzomyia munangai Wijers & Huisenga, 1967 – *Bulletin of Entomological Research*, 57: 395-397 (M*).
Viannamyia munangai Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 106. Forattini, 1973 – "Entomologia Médica, 4º Volume": 510 (M*).
PANAMA: *Darien* – Altos de Quia (Pinogana District).
COLOMBIA: *Antioquia* – Anorí; *Caquetá* – Solano; *Valle* – Buenaventura, Lower Anchicaya Dam, Rio Raposa.
SURINAM: Moengo.
FRENCH GUYANA: *Cayenne* – Baduel, Tonate.
BRAZIL: *Roraima* – Caracaraí§; *Amazonas* – Fonte Boa; *Acre* – Rio Branco§; *Pará* – Ananindeua§, Belém, Benevides§, Castanhal§, Irituia, João Coelho, Ourém, Peixe Boi, São Domingos do Capim.

Subgenus PRESSATIA Mangabeira

(Figs. 42-45; Map X)

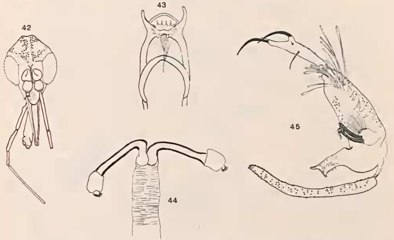
Pressatia Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz*, 37: 131 (subgenus, of the genus *Phlebotomus*, defined with *Flebotomus triacanthus* Mangabeira as the type species). Barretto, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo*, 4: 94 (subgenus, of the genus *Lutzomyia*, defined). Theodor, 1965 – *Journal of Medical Entomology*, 2: 192 (subgenus defined). Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 106 (raised to generic level). Forattini, 1973 – "Entomologia Médica, 4º Volume": 511-521.

Fifth palpal segment very long, always longer than the combined lengths of the third and fourth segments, sometimes approaching the sum of segments 2, 3 and 4.

SciELO

Cibarium of the female with four horizontal teeth and two groups of lateral teeth. Body of the spermatheca in the form of a cylindrical capsule with delicate thin walls and with a small "head"; individual spermathecal duct short, with chitinized walls; common duct long and wide, with membranous walls.

Dististyle of the male with two or three well-developed spines, a subterminal seta, and a reduced, hair-like spine near the middle. Basistyle with an inner basal tuft composed of two or three groups of setae – a dorsal lobe (two dorsal lobes in one species) with hair-like setae and a ventral tubercule bearing leaf-like setae; many species also have a group of hairs near the distal end of the basistyle. Distal end of paramere with a dorsal or ventral process, or both. Lateral lobe long, tapering and upwardly curved.



Figs. 42-45. Subgenus *Pressatia. L. choti*: female – head (42), cibarium (43), spermathecae and ducts (44); male – genitalia (45).

55. Lutzomyia (Pressatia) calcarata Martins & Silva

Lutzomyia calcarata Martins & Silva, 1964 – *Revista Brasileira de Biologia,* 24: 131-133 (M*). Llanos, Martins & Silva, 1976 – *Revista Brasileira de Biologia,* 36: 483-485 (F*).

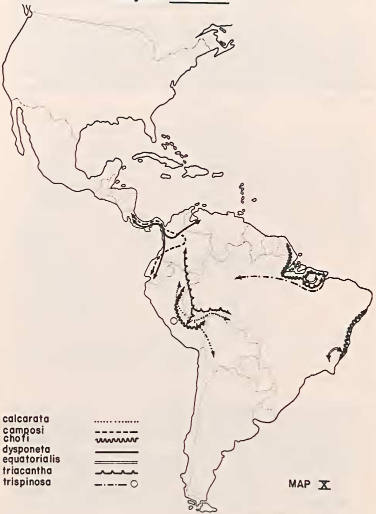
Pressatia calcarata Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 106. Forattini, 1973 – "Entomologia Médica, 4º Volume": 512 (M*).

PERU: *Huánuco* – Cachicote§; *Loreto* – Pucallpa§; *Madre de Dios* – Iberia§.

BRAZIL: *Acre* – Cruzeiro do Sul§; *Rondônia* – Guajará Mirim§.

BOLIVIA: *La Paz* – Los Yungas.

Subgenus **PRESSATIA**


calcarata
camposi
chofi
dysponeta
equatorialis
triacantha
trispinosa

MAP X

56. **Lutzomyia (Pressatia) camposi (Rodriguez)**

Phlebotomus camposi Rodriguez, 1950 – *Revista Ecuatoriana de Higiene y Medicina Tropical,* 7: 25, 26-28 (M*).

Pressatia camposi Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 106. Forattini, 1973 – "Entomologia Médica, 4º Volume": 512-514 (M*, F*, P*, L*).

Phlebotomus acanthobasis Fairchild & Hertig, 1952 – *Annals of the Entomological Society of America,* 45: 508, 509 (M*, F*).

Phlebotomus sp. O, Floch, 1953 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 288: 58.

Phlebotomus (Pressatia) sp. Floch, 1954 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 326: 246.

COSTA RICA: El Molino de Guápiles, Jimenez de Guápiles, Limon, Suerre de Guápiles, Turrialba.

PANAMA: *Bocas del Toro* – Almirante, Nutivi; *Colon* – Palenque; *Panama* – Arraijan, Cerro Campana, Charco El Toro, Chorrera, Cerro Jefe, Upper Rio Pequeni; *Canal Zone* – Cocoli, Cruces Trail, Gatun, Gatuncillo, Juan Mina, Limbo Field Station, Loma Borracha, Madden Dam, Mojinga Swamp, Rio del Medio.

COLOMBIA: *Antioquia* – Chigorodó; *Boyacá* – Puerto Boyacá; *Caldas* – Victoria; *Santander* – San Vicente de Chucurí; *Tolima* – Honda; *Valle* – Rio Raposo.

ECUADOR: *Los Rios* – Quevedo.

57. **Lutzomyia (Pressatia) choti** (Floch & Abonnenc)

Phlebotomus choti Floch & Abonnenc, 1941 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 15: 8-13 (M*, F*). Carneiro & Sherlock 1964 – *Revista Brasileira de Malariologia e Doenças Tropicais,* 16: 313, 322 (P*).

Pressatia choti Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 106. Forattini, 1973 – "Entomologia Médica, 4º Volume": 514-515 (M*, F*, P*).

FRENCH GUYANA: *Cayenne* – Baduel, Cabassou, Matoury, Montabo, Montjoly.

BRAZIL: *Pará* – Belém; *Maranhão* – Cururupú§; *Pernambuco* – Igaraçú; *Bahia* – Salvador (?); *Espírito Santo* – Colatina§, Linhares§.

PERU: *Cuzco* – Torreblanca; *Huánuco* – Cachicoto§; *Loreto* – Quistococha; *Madre de Dios* – Iberia§.

58. **Lutzomyia (Pressatia) dysponeta** (Fairchild & Hertig)

Phlebotomus dysponetus Fairchild & Hertig, 1952 – *Annals of the Entomological Society of America,* 45: 505-597 (M*, F*).

Pressatia dysponeta Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 106. Forattini, 1973 – "Entomologia Médica, 4º Volume": 515, 517 (M*, F*).

Phlebotomus triacanthus Rodriguez, 1950 – *Revista Ecuatoriana de Higiene y Medicina Tropical,* 7: 25.

COSTA RICA: Pacuare, Suerre de Guápiles, Turrialba.

PANAMA: *Bocas del Toro* – Nutivi; *Darien* – Altos de Quia, El Real; *Panama* – Charco El Toro, Old Panama, Pacora, Tocumen; *Canal Zone* – Chagres River, Chiva-Chiva, Juan Mina, Loma Borracha, Madden Dam, Santa Rosa.

VENEZUELA: *Zulia* – Valmore Rodriguez (Zipayare).

ECUADOR: *Guayas* – Boliche, Naranjal; *Los Rios* – Quevedo.

59. Lutzomyia (Pressatia) equatorialis (Mangabeira)

Flebotomus (Pressatia) equatorialis Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* 37: 127-131 (M*).

Lutzomyia (Pressatia) aequatorialis Barretto, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo,* 4: 95.

Pressatia equatorialis Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 107. Forattini, 1973 – "Entomologia Médica, 4º Volume": 517 (M*).

BRAZIL: *Pará* – Belém, João Coelho, Peixe Boi, São Domingos do Capim; *Espírito Santo* – Colatina§, Linhares§; *Minas Gerais* – Itanhomí.

60. Lutzomyia (Pressatia) triacantha (Mangabeira)

Flebotomus (Pressatia) triacantha Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* 37: 119-123 (M*). Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* 37: 242-249, Plates I–V (F*, P*, L*, E).

Pressatia triacantha Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 107. Forattini, 1973 – "Entomologia Médica, 4º Volume": 520 (M*, F*, P*, L*).

COLOMBIA: *Meta* – Puerto López.

PERU: *Huánuco* – Cachicoto§.

BRAZIL: *Acre* – Cruzeiro do Sul§; *Rondônia* – Guajará Mirim§; *Pará* – Ananindeua, Anhangá, Belém, João Coelho, Ourém, São Domingos do Capim.

61. Lutzomyia (Pressatia) trispinosa (Mangabeira)

Flebotomus (Pressatia) trispinosus Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* 37: 123-127 (M*).

Pressatia trispinosa Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 107.

Pressatia choti (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 514.

PERU: *Huánuco* – Cachicoto.

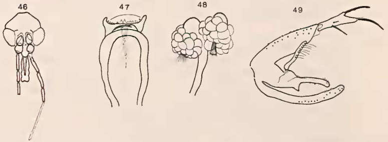
BRAZIL: *Amazonas* – Manacapurú, Parintins; *Pará* – Ananindeua, Anhangá, Belém, João Coelho, Obidos, Ourém, São Domingos do Capim; *Maranhão* – Turiaçu§.

Subgenus DAMPFOMYIA Addis

(Figs. 46-49; Map XI)

Dampfomyia Addis, 1945 – *Journal of Parasitology*, 31: 120 (subgenus, of the genus *Phlebotomus*, defined with *Phlebotomus anthophorus* Addis as the type species). Barretto, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo*, 4: 95 (subgenus, of the genus *Lutzomyia*, defined). Theodor, 1965 – *Journal of Medical Entomology*, 2: 193 (subgenus defined). Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 100 (subgenus defined). Forattini, 1973 – "Entomologia Médica, 4º Volume": 326-335.

Anthophorus Leon, 1971 – *Revista del Colegio Médico de Guatemala*, 22: 187 (subgenus defined).



Figs. 46-49. Subgenus *Dampfomyia. L. rosabali*: female – head (46), cibarium (47), spermatheca and ducts (48); male – genitalia (49) (Re-drawn from Fairchild & Hertig, 1956).

Fifth palpal segment long, greater than the combined lengths of segments 3 and 4. Third antennal segment unusually short. Eyes unusually small.

Cibarium of the female with 2-6 broad horizontal teeth, a row of vertical teeth and often with a row or compact group of lateral teeth; pigment patch well-defined; cibarial arch complete, and flared laterally. Spermatheca broad, with the walls bearing bubble-like expansions and the "head" deeply invaginated; individual spermathecal duct short or long; common duct short or long and narrow or broad.

Dististyle of the male with a subterminal seta and 3-5 spines, some being reduced in size. Basistyle lacking an inner basal tuft of hairs. Paramere bearing a dorsally-directed setiferous arm and with a small tooth-like process on the ventral surface.

62. Lutzomyia (Dampfomyia) anthophora (Addis)

Phlebotomus (Dampfomyia) anthophorus Addis, 1945 – *Journal of Parasitology*, 31: 122-125 (M*, F*).

Phlebotomus anthophorus Addis, 1945 – *Journal of Parasitology*, 31: 319-322 (P*, L*, E*). Fairchild & Hertig, 1956 – *Annals of the Entomological Society of America*, 49: 308, 309, 311 (M*, F*).

UNITED STATES: *Texas* – Brownsville (Cameron County), San Antonio (Bexar County), Sinton (San Patricio County), Uvalde (Uvalde County).

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15 16

MEXICO: *Guerrero* – Buenavista, Cocula, Iguala; *Michoacán* – Nocupétaro; *Nuevo León* – Gruta de Garcia.

63. **Lutzomyia (Dampfomyia) dodgei** (Vargas & Díaz Nájera)

Phlebotomus dodgei Vargas & Díaz Nájera, 1953 – *Revista del Instituto de Salubridad y Enfermedades Tropicales,* 13:44-46 (M*, F*). Fairchild & Hertig, 1956 – *Annals of the Entomological Society of America,* 49:308, 310 (M*, F*).

MEXICO: *Chiapas* – Tuxtla Gutierrez; *Guerrero* – Cocula, Iguala; *Michoacán* – Apatzingán, Las Colonias; *Morelos* – Cuautla.

EL SALVADOR: *Cabañas*: Rio Lempa, Carretera Pan-americana (Km. 81 between San Salvador and San Miguel).

64. **Lutzomyia (Dampfomyia) insolita** (Fairchild & Hertig)

Phlebotomus insolitus Fairchild & Hertig, 1956 – *Annals of the Entomological Society of America,* 49:309, 310, 312 (M*).

Phlebotomus rubidulus Fairchild & Hertig, 1956 – *Annals of the Entomological Society of America,* 49: 309, 311, 312 (F*). Christensen & Rutledge, 1973 – *Journal of Medical Entomology,* **10**: 314 (synonymy).

PANAMA: *Bocas del Toro* – Almirante; *Canal Zone* – Gamboa, Mojinga Swamp.

65. **Lutzomyia (Dampfomyia) permira** (Fairchild & Hertig)

Phlebotomus permirus Fairchild & Hertig, 1956 – *Annals of the Entomological Society of America,* 49: 309, 311, 312, (F*).

Phlebotomus (Brumptomyia) permirus Lewis & Garnham, 1959 – *Proceedings of the Royal Entomological Society of London,* (Series B), 28: 85, 86 (M*, F*).

MEXICO: *Chiapas* – Palenque.

BELIZE : Augustine§, Baking Pot§, Benque Viejo – Arenal road§, Branch Mouth, Central Farm§, mile 8 & mile 10 – 11 Chiquibul Road§, Cool Shade, Esperanza§, Iguana Creek§, Never Delay§, Never Delay road§, Putchetuk, Roaring River§, Sayab Camp, Soccutz.

66. **Lutzomyia (Dampfomyia) rosabali** (Fairchild & Hertig)

Phlebotomus rosabali Fairchild & Hertig, 1956 – *Annals of the Entomological Society of America*, 49: 308, 309-311 (M*, F*).

Lutzomyia (Dampfomyia) dodgei (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 329.

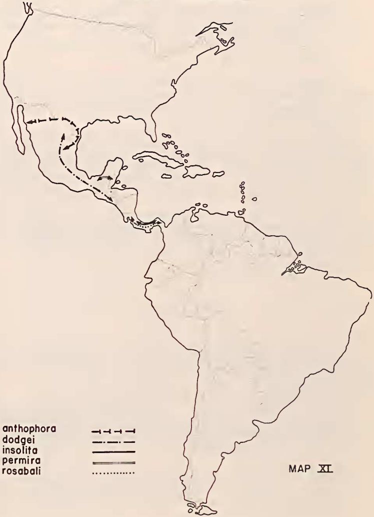
COSTA RICA: *Puntarenas* – Barranca (Finca Socorrito).

PANAMA: *Chiquiri* – Puerto Armuelles; *Los Santos* – Guarare.

COLOMBIA: *Neriño* – Consacá, La Unión.

SciELO

Subgenus DAMPFOMYIA


anthophora
dodgei
insolita
permira
rosabali

MAP XI

Subgenus MICROPYGOMYIA Barretto

(Map XII)

Micropygomyia Barretto, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo*, **4**: 95 (subgenus defined with *Phlebotomus cayennensis* Floch & Abonnenc as the type species). Forattini 1971 – *Papéis Avulsos de Zoologia*, **24**: 100-101 (subgenus redefined). Forattini, 1973 – "Entomologia Médica, 4º Volume": 335-343.
Trichopygomyia (*pro parte*) Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 310, 312.

In slide-mounted material, the palps extend to one-third or, even, a half of the length of the antennae. Fifth palpal segment usually very long, always longer than the third segment, usually greater than the combined lengths of segments 3 and 4, sometimes as long as the sum of segments 2, 3 and 4.

Cibarium of the female with 4-33 horizontal teeth, having the appearance of a finely-toothed comb in many species, without vertical teeth or with a single row of 6-8 vertical teeth; pigment patch well-defined; cibarial arch incomplete. Spermatheca weakly or strongly segmented with a globose or capsulate terminal segment bearing a prominent "head"; individual spermathecal duct long and narrow, with delicate walls; common duct short or absent.

Dististyle of the male with four or five well-developed spines, of which two are terminal or one terminal and one subterminal; subterminal seta absent. Basistyle with an inner basal tuft of hairs in one series only. Paramere and lateral lobe simple, unarmed. Aedeagus usually in the form of an elongate cone.

The subgenus is divided into two series.

Series *cayennensis*

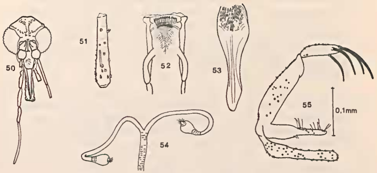
(Figs. 50-55)

Dististyle of the male with four well-developed spines, basistyle without an inner basal tuft of hairs. Ascoids often very short.

67. Lutzomyia (Micropygomyia) cayennensis (Floch & Abonnenc)
Phlebotomus cayennensis Floch & Abonnenc, 1941 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 15: 14-16 (M*).
Lutzomyia (*Micropygomyia*) *cayennensis* Forattini, 1973 – "Entomologia Médica, 4º Volume": 336, 338 (M*, F*, P, L*).

67a. **Lutzomyia (Micropygomyia) cayennensis braci** Lewis
Lutzomyia cayennensis braci Lewis, 1967 – *Journal of Natural History*, **2**: 77-78, 80 (M*, F*).
CAYMAN ISLANDS: Cayman Brac.

SciELO



Figs 50-55. Subgenus *Micropygomyia*, series *cayennensis*. *L. cayennensis*: female – head (50), 4th antennal segment (51), cibarium (52), pharynx (53); male – genitalia (55). *L. schreiberi*: female – spermathecae and ducts (54).

67 b. Lutzomyia (Micropygomyia) cayennensis cayennensis (Fairchild & Hertig)

Phlebotomus cayennensis cayennensis Fairchild & Hertig, 1948 – *Annals of the Entomological Society of America*, 41: 460, 461, 463, 465 (M*, F*).

MEXICO: *Guerrero* – Cocula, Huitzuco, Iguala.

BELIZE: Esperanza§.

EL SALVADOR: Canton Paratao, Canton Peña Branca, Puerto La Libertad.

COSTA RICA: Puntarenas.

PANAMA: Bejuco, Forte San Lorenzo, La Victoria, Old Panama, Panama City, Pacora.

COLOMBIA: *Bolivar* – Mompós, Simiti; *Boyacá* – Puerto Boyacá; *Caldas* – Victoria; *Cesar* – Codazzi, Valledupar; *Cundinamarca* – Agua de Dios, Nilo, Puerto Salgar, Tocaima; *Guajira* – Maicao, Uribia, Urumita; *Huila* – Aipe, Neiva; *Magdalena* – Aracataca, Pivijay, Santa Marta, Tamalameque; *Meta* – Villavicencio; *Norte de Santander* – Cúcuta, Villa del Rosario; *Santander* – San Vicente de Chucuri; *Tolima* – Armero, Cayaima, Guamo, Honda, Melgar, Purificación, Saldaña.

VENEZUELA: *Distrito Federal* – Caraballeda; *Aragua* – Choroni; *Falcón* – Hombre Pintado, Mene de Mauroa; *Miranda* – Guatono, Los Chorros; *Sucre* – Cumanacoa; *Yaracuy* – San Felipe; *Zúlia* – Bachaquero, Rio Negro, Zipayare.

TRINIDAD: Bush Bush Forest.

FRENCH GUYANA: *Cayenne* – Ilet-la-Mère, Montjoly.

ECUADOR: *Esmeraldas* – Calope (?).

PERU: *Tumbes* (?).

67c. Lutzomyia (Micropygomyia) cayennensis hispaniolae (Fairchild & Trapido)

Phlebotomus cayennensis hispaniolae Fairchild & Trapido, 1950 – *Annals of the Entomological Society of America*, 43: 409, 415 (M*, F*).

DOMINICAN REPUBLIC: *Espaillat* – Rio Verde; *Puerto Plata* – Colonia Pedro Garcia; *Seibo* – Hato Mayor, Sabana de la Mar; *de la Vega* – Rincon; San Domingos (formerly Ciudad Trujillo).

HAITI: Cap Haitien, Charrier, La Voute, Millot, Port au Prince.

67d. Lutzomyia (Micropygomyia) cayennensis jamaicensis (Fairchild & Trapido)

Phlebotomus cayennensis jamaicensis Fairchild & Trapido, 1950 – *Annals of the Entomological Society of America*, 43: 409, 414, 415 (M*, F*).

JAMAICA: St. Andrew (near Kingston), Ferry River, Rockfort, Discovery Bay.

67e. Lutzomyia (Micropygomyia) cayennensis maciasi (Fairchild & Hertig)

Phlebotomus cayennensis maciasi Fairchild & Hertig, 1948 – *Annals of the Entomological Society of America*, 41: 463, 464 (M, F*).

MEXICO: *Guerrero* – Cocula, Iguala, Zumpango.

GUATEMALA: Esquintla de San José.

BELIZE: Augustine§, Baking Pot§, Branch Mouth, Central Farm§, mile 8 & mile 10-11 Chiquibul Road§, Esperanza§, mile 48 Hummingbird Highway§, Iguana Creek§, Never Delay§, Never Delay road§, Roaring River§, San Pedro Colombia§.

67f. Lutzomyia (Micropygomyia) cayennensis puertoricensis (Fairchild & Hertig)

Phlebotomus cayennensis puertoricensis Fairchild & Hertig, 1948 – *Annals of the Entomological Society of America*, 41: 461-465 (M*, F*).

PUERTO RICO: Lares, Route 1 (Cayey-Aibonito, near Km. 67), Route 11 (near Km. 47, Toro Negro Unit of the Caribbean National Forest), Route 43 (5.8 Miles south of Canovanas).

67g. Lutzomyia (micropygomyia) cayennensis viequesensis (Fairchild & Hertig)

Phlebotomus cayennensis viequesensis Fairchild & Hertig, 1948 – *Annals of the Entomological Society of America*, 41: 461, 463, 465, 466 (M, F*).

PUERTO RICO: *Vieques Island* – Isabel Segunda, Laguna Yanuel.

VIRGIN ISLANDS: *St Thomas* – Charlotte Amalie.

68. Lutzomyia (Micropygomyia) ctenidophora (Fairchild & Hertig)

Phlebotomus ctenidophorus Fairchild & Hertig, 1948 – *Annals of the Entomological Society of America*, 41: 456, 463, 465, 466 (F*).

MEXICO: *San Luis Potosi* – Tamazunchale.

69. Lutzomyia (Micropygomyia) cubensis (Fairchild & Trapido)

Phlebotomus cubensis Fairchild & Trapido, 1950 – *Annals of the Entomological*

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15 16

Society of America, 43: 409, 414 (M*, F*).

Lutzomyia (*Trichopygomyia*) *cubensis* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 102.

UNITED STATES: *Florida* – Pine Key (Monroe County).

CUBA: *Camaguey* – Finca Chiquito Ingenio, Finca El Milagro, Siete Palmas; *Havana* – Chapaste; *Matanzas* – Ceiba Mocha; *Pinar del Rio* – San Vicente.

70. **Lutzomyia (Micropygomyia) duppyorum (Fairchild & Trapido)**

Phlebotomus duppyorum Fairchild & Trapido, 1950 – *Annals of the Entomological Society of America*, 43: 409, 412 (M*, F*).

JAMAICA: *Manchester* – Melrose Hill; *St Andrews* – Ferry River, Rockfort, Stone Hill, Tom Cringle's Tree; *St Catherine* – Springvale; *St James* – Montego Bay, Schaw Castle; *St Thomas* – Albion; *Trelawney* – Dee Side.

71. **Lutzomyia (Micropygomyia) farilli Vargas & Díaz Nájera**

Phlebotomus Farilli Vargas & Díaz Nájera, 1959 – *Revista del Instituto de Salubridad y Enfermedades Tropicales*, 19: 141-142, 154 (F*).

Lutzomyia (*Micropygomyia*) *cayennensis* (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 336.

MEXICO: *Chiapas* – Escuintla (Acocoyahua).

72. **Lutzomyia (Micropygomyia) hardisoni Vargas & Díaz Nájera**

Phlebotomus hardisoni Vargas & Díaz Nájera, 1952 – *Revista de la Sociedad Mexicana de História Natural*, 13: 63-66 (M*, F*).

Lutzomyia (*Micropygomyia*) *cayennensis* (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 336.

MEXICO: *Guerrero* – Iguala.

73. **Lutzomyia (Micropygomyia) micropyga (Mangabeira)**

Flebotomus micropygus Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz*, 37: 132-136 (M*).

Phlebotomus micropygus Pifano, Ortiz & Alvarez, 1962 – *Archivos Venezolanos de Medicina Tropical y Parasitologia Médica*, 4: 380, 381, 382, 385, 402-403, 419-421, 423, 425, 428 (M*, F*).

Lutzomyia (*Trichopygomyia*) *micropyga* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 310, 312 (M* only; F* and P* = *schreiberi*).

Lutzomyia micropyga Llanos, Martins & Silva, 1976 – *Revista Brasileira de Biologia*, 36: 480-482 (F*).

PANAMA: *San Blas Territory* – Camp Sasardi.

COLOMBIA: *Antioquia* – Chigorodó, Mutatá; *Bolivar* – Simití; *Boyacá* – Puerto Boyacá; *Caldas* – Victoria; *Cundinamarca* – Puerto Salgar; *Guajira* – Maicao, Urumita; *Magdalena* – Rio Don Diego, Santa Maria; *Meta* – Acacias, Granada, Villavicencio; *Norte de Santander* – Cúcuta; *Santander* – San Vicente de Chucurí; *Tolima* – Mariquita.

VENEZUELA: *Aragua* – Rancho Grande; *Miranda* – Guatope; *Zulia* – Zipayare.

TRINIDAD: Bush Bush Forest.

PERU: *Cuzco* – Pilcopata§, Quillabamba§; *Loreto* – Pucallpa§; *Madre de Dios* – Iberia§, Mancilla§, Noaya, Puerto Maldonado.

BRAZIL: *Roraima* – Boa Vista§, Caracaraí§; *Amapá* – Macapá§; *Amazonas* – Careiro§, Manaus, São Paulo de Olivença, Tefé; *Acre* – Cruzeiro do Sul§, Feijó§, Rio Branco§; *Rondônia* – Guajará Mirim§; *Pará* – Acará§, Ananindeua§, Belém, Benevides§, Castanhal§, Irituia, João Coelho, Ourém, Peixe Boi, Santarém, São Miguel do Guamá, Timboteua; *Maranhão* – Cururupu§, Paço do Lumiar§, São Luiz§, Turiaçú§; *Goiás* – Arraias§, Itumbiara§, Porto Nacional§; *Mato Grosso* – Barra do Bugres§, Diamantino§, Mato Grosso§.

BOLIVIA: *Pando* – Villa Bella§.

74. **Lutzomyia (Micropygomyia) minasensis (Mangabeira)**

Flebotomus minasensis Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz*, 37: 136-319 (M*).

Lutzomyia (*Trichopygomyia*) *minasensis* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 102.

Lutzomyia (*Trichopygomyia*) *micropyga* (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4° Volume": 310.

BRAZIL: *Minas Gerais* – Campanário§, Jaboticatubas§, Janaúba§, Januária, Montes Claros§, Santana do Riacho§.

75. **Lutzomyia (Micropygomyia) oliveirai Martins, Silva & Falcão**

Lutzomyia oliveirai Martins, Silva & Falcão, 1970 – *Revista Brasileira de Biologia*, 30: 550-552 (M*, F*).

Lutzomyia (*Trichopygomyia*) *oliveirai* Forattini, 1973 – "Entomologia Médica, 4° Volume": 312 (M*, F*).

BRAZIL: *Minas Gerais* – Jaboticatubas§, Paracatú§, Santana do Riacho§; *Goiás* – Arraias§; *Mato Grosso* – Camapuan§.

76. **Lutzomyia (Micropygomyia) quadrispinosa (Floch & Chassignet)**

Phlebotomus quadrispinosus Floch & Chassignet, 1947 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication N° 155: 2-3, 5 (M*).

Lutzomyia (*Trichopygomyia*) *quadrispinosa* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 102.

Phlebotomus sp. I de Baduel, Floch, 1947 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication N° 151:151 (M).

Lutzomyia (*Trichopygomyia*) *micropyga* (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4° Volume": 310.

FRENCH GUYANA: *Cayenne* – Baduel.

77. Lutzomyia (Micropygomyia) schreiberi Martins, Falcão & Silva

Lutzomyia schreiberi Martins, Falcão & Silva, 1975 – *Ciência e Cultura,* **27**: 769-771 (M*, F*).

Phlebotomus micropygus Sherlock & Carneiro, 1962 – *Memórias do Instituto Oswaldo Cruz,* **60**: 430-431 (F*). Carneiro & Sherlock, 1964 – *Revista Brasileira de Malariologia e Doenças Tropicais,* **16**: 314, 315, 323 (P*). Sherlock & Carneiro, 1964 – *Revista Brasileira de Biologia,* **24**: 207, 208 (M*).

Lutzomyia (Trichopygomyia) micropyga (pro parte) Forattini, 1973 – "Entomologia Médica, 4º Volume" : 312 (F* , P*).

BRAZIL: Ceará – Pacatuba§; *Paraíba* – João Pessoa§ Pernambuco – Lagoa dos Gatos, Paulista§, Recife, Rio Tinto§; *Bahia* – Barreiras§, Cachoeira, Canavieiras§, Entre Rios, Gandú§, Ilhéus§, Inhambupe, Itabuna§, Itagimirim§, Itajuípe§, Jequiriçá§, Nazaré, Pojuca, São Gonçalo dos Campos, Salvador, Taperoá§, Ubatan§, Una§, Uruçuca, Valença§; *Espírito Santo* – Aracruz§, Baixo Guandú§, Barra de São Francisco§, Colatina§, Conceição da Barra§, Conceição do Castelo§, Santa Leopoldina§, São Domingos§, São Gabriel§, São Mateus§, Serra§, Viana§, Vitória§; *Rio de Janeiro* – Caxias§, Ibicuí§, Itaboraí§, Itacuruçá§, Itaperuna§, Macaé§, Magé§, Muriqui§, Niterói§, Nova Iguaçu§, Petrópolis§, Rio Bonito§, Rio de Janeiro§, São Pedro d'Aldeia§, Teresópolis§; *São Paulo* – Caraguatatuba§, São Sebastião; *Minas Gerais* – Aimorés§, Além Paraíba§, Belo Horizonte§, Caratinga§, Central de Minas§, Conselheiro Pena§, Coronel Fabriciano§, Don Cavati§, Galileia§, Iapu§, Itanhomi§, Jaboticatubas§, Januária§, Jequitinhonha§, Lagoa Santa§, Leopoldina§, Mantena§, Marlieria§, Matozinhos§, Mutum§, Peçanha§, Pedro Leopoldo§, Rio Casca§, Salto da Divisa§, São João do Oriente§, Sete Lagoas§, Tarumirim§, Teófilo Otoni§, Unaí§, Volta Grande§.

78. Lutzomyia (Micropygomyia) wirthi Vargas & Díaz Nájera

Phlebotomus wirthi Vargas & Díaz Nájera, 1951 – *Revista del Instituto de Salubridad y Enfermedades Tropicales,* **12**: 103-105 (F*).

Lutzomyia (Micropygomyia) cayennensis (pro parte) Forattini, 1973 – "Entomologia Médica, 4º Volume": 336.

MEXICO: Vera Cruz – Carrizal.

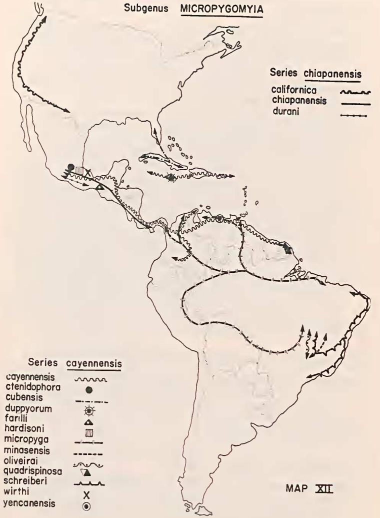
79. Lutzomyia (Micropygomyia) yencanensis Ortiz

Phlebotomus yencanensis Ortiz, 1965 – *Acta Biologica Venezuelica,* **4**: 208, 209, 210 (M, F).

Lutzomyia (Micropygomyia) cayennensis (pro parte) Forattini, 1973 – "Entomologia Médica, 4º Volume": 336.

VENEZUELA: Aragua – Rancho Grande.

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15


Subgenus MICROPYGOMYIA
Series chiapanensis
californica
chiapanensis
durani
Series cayennensis
cayennensis
ctenidophora
cubensis
duppyorum
farilli
hardisoni
micropyga
minasensis
oliveirai
quadrispinosa
schreiberi
wirthi
X
yencanensis

MAP XII

Series *chiapanensis*

(Figs. 56-60)

Ascoids extending to the distal end of the segment. Diststyle of the male with five well-developed spines. Basistyle with an inner basal tuft of fine or strong hairs.

The *chiapanensis* series appears to be a link between *Micropygomyia* and *Helcocyrtomyia.*

80. **Lutzomyia (Micropygomyia) californica** (Fairchild & Hertig)

Phlebotomus californicus Fairchild & Hertig, 1957 – *Annals of the Entomological Society of America,* **50**: 328 (M*, F*).

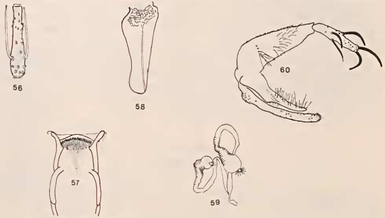
UNITED STATES: CALIFORNIA – Bakersfield, Buttonwillow, Shafter (Kern County), Big Pine (Inyo County), Borrego Spring, Culp Valley (San Diego County), Capay (Yolo County), Fort Yuma (Imperial County), Ukiah (Mendocino County), Wendel (Lassen County); *Texas* – Marfa (Presidio County); *Washington* – Othello (Adams County).

81. **Lutzomyia (Micropygomyia) chiapanensis** (Dampf)

Phlebotomus chiapanensis Dampf, 1947 – *Médicina – Revista Méxicana,* **27**: 180-182 (F*). Fairchild & Hertig, 1948 – *Annals of the Entomological Society of America,* **41**: 456, 457, 459 (M*, F*).

MEXICO: Chiapas – Chiapa de Corzo; *Guerrero* – Cocula, Iguala; *Michoacan* – Caracuaro.

EL SALVADOR: Cabañas – Sensuntepeque; *Chalatenango* – San Isidro Labra-



Figs. 56-60. Subgenus *Micropygomyia,* series *chiapanensis. L. chiapanensis:* female – 4th antennal segment (56), cibarium (57), pharynx (58); male – genitalia (60). *L. californica:* female – spermathecae and ducts (59).

dor; La Libertad.
COSTA RICA: Barranca.
PANAMA: Herrera – Puerto Chitre; *Panama* – Old Panama.

82. **Lutzomyia (Micropygomyia) durani** (Vargas & Díaz Nájera)
Phlebotomus durani Vargas & Díaz Nájera, 1952 – *Revista de la Sociedad Mexicana de Historia Natural,* 13: 68-70 (M*, F*).
MEXICO: Guerrero – Iguala; *Michoacan* – Nocupétaro.

Subgenus HELCOCYRTOMYIA Barretto

Helcocyrtomyia Barretto, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo,* 4: 96 (subgenus defined with *Phlebotomus peruensis* Shannon as the type species).
Lutzomyia (subgenus *pro parte*) Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 99, 100. Forattini, 1973 – "Entomologia Médica, 4º Volume": 234, 237, 261, 263, 265, 266, 267, 270, 271, 272, 273.
Trichopygomyia (pro parte) Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 302, 303, 306, 307, 309, 312-314, 316-317, 321, 325-326.
Trichophoromyia (pro parte) Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 448, 466, 468.

Fifth palpal segment long, greater than the length of the third segment, sometimes longer than the combined lengths of segments 3 and 4. Ascoids usually short or very short.

Cibarium of the female with four horizontal teeth; with or without vertical teeth; pigment patch well-defined or pale; cibarial arch incomplete, and often flared laterally. Pharynx of several species armed with spines. Body of spermatheca capsulate, with or without annulations and with a well-developed "head"; individual spermathecal ducts long and narrow; common duct very short or absent.

Dististyle of the male with five well-developed spines, of which two are terminal and the others are unpaired. Basistyle with an inner basal tuft which may be compact or diffuse or, at times, composed of so few hairs that the tuft seems to be absent. Paramere simple and unadorned; lateral lobe unarmed.

The subgenus is divided into three series.

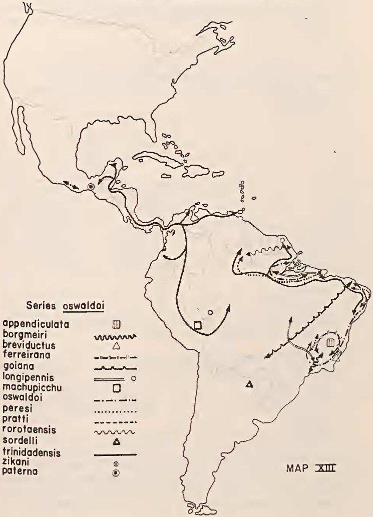
Series *oswaldoi*

(Figs. 61-64; Map XIII)

Cibarium of the female lacking vertical teeth. Body of the spermatheca pear-shaped, or weakly annulated with a globose terminal segment, or sausage-shaped with smooth walls.

Species placed in this series are probably the most primitive of the genus *Lutzomyia.*

Subgenus HELCOCYRTOMYIA (in part)


Series oswaldoi
appendiculata
borgmeiri
breviductus
ferreirana
goiana
longipennis
machupicchu
oswaldoi
peresi
pratti
rorotaensis
sordelli
trinidadensis
zikani
paterna

MAP XIII

83. **Lutzomyia (Helcocyrtomyia) appendiculata** Martins, Falcão & Silva

Lutzomyia appendiculata Martins, Falcão & Silva, 1961 – *Revista Brasileira de Biologia,* 21: 297-299 (M*).

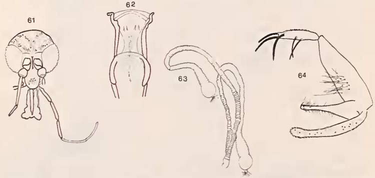
Lutzomyia (Trichopygomyia) appendiculata Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 302 (M*).

BRAZIL: Minas Gerais – Jequitinhonha§.

84. **Lutzomyia (Helcocyrtomyia) borgmeieri** Martins, Falcão & Silva

Lutzomyia borgmeieri Martins, Falcão &Silva, 1972 – *Studia Entomologica,* 15: 497-501 (M*, F*).

BRAZIL: Minas Gerais – Belo Horizonte§; *São Paulo* – Apiaí§.



Figs. 61-64. Subgenus *Helcocyrtomyia,* series *oswaldoi. L. longipennis:* female – head (61), cibarium (62), spermathecae and ducts (63); male – genitalia (64).

85. **Lutzomyia (Helcocyrtomyia) breviductus** (Barretto)

Phlebotomus breviductus Barretto, 1950 – *Folia Clinica et Biologica,* 16: 146-147 (M*).

Lutzomyia (Trichopygomyia) breviducta Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 302-303 (M*).

BRAZIL: Espírito Santo – Alegre (Fazenda Jerusalém).

86. **Lutzomyia (Helcocyrtomyia) ferreirana** (Barretto, Martins & Pellegrino)

Sergentomyia ferreirana Barretto, Martins & Pellegrino, 1956 – *Folia Clinica et Biologica,* 26: 52-53, 56 (M). Barretto, Martins et Pellegrino, 1958 – *Revista Brasileira de Malariologia e Doenças Tropicais,* 10: 187-188, 193, (M*). (F known but not yet described).

Lutzomyia (Trichopygomyia) ferreirana Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 306 (M*).

BRAZIL: Minas Gerais – Belo Horizonte§, Caratinga§, Cassia§, Conselheiro Pena§, Curvelo§, Itambacuri§, Itanhomi§, Peçanha§, Prudente de Morais§, São João Evangelista§, São João do Oriente§.

87. **Lutzomyia (Helcocyrtomyia) goiana Martins, Falcão & Silva**

Lutzomyia goiana Martins, Falcão & Silva, 1962 – *Revista Brasileira de Malariologia e Doenças Tropicais,* 14: 383-385, 396, 397 (M*, F*).

Lutzomyia (Trichopygomyia) goiana Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102.

Lutzomyia (Trichopygomyia) trinidadensis (pro parte) Forattini, 1973 – "Entomologia Médica, 4º Volume": 321.

BRAZIL: Ceará – Maranguape§, Pacatuba§; *Goiás* – Amaro Leite§, Arraias§, Sitio d'Abadia§; *Mato Grosso* – Aquidauana§.

88. **Lutzomyia (Helcocyrtomyia) longipennis (Barretto)**

Flebotomus longipennis Barretto, 1946 – *Revista Brasileira de Biologia,* 6: 427-429 (M*).

Lutzomyia longipennis Martins, Falcão & Silva, 1962 – *Revista Brasileira de Malariologia e Doenças Tropicais,* 14: 390-391, 393, 400, 401 (M*, F*).

Lutzomyia (Trichopygomyia) longipennis Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 307, 309 (M*, F*).

BRAZIL: Acre – Rio Branco§; *Pará* – Belém, Santarém; *Maranhão* – Croatá§; *Minas Gerais* – Arinos§, Belo Horizonte§, Contagem§, Corinto§, Curvelo§, Felixlandia§, Matozinhos§, Taquaraçu§; *Goiás* – Corumbá de Goiás, Amaro Leite§, Ceres§, Goiana§, Rianópolis§, Sítio d'Abadia§, Uruaçu§.

89. **Lutzomyia (Helcocyrtomyia) machupicchu Martins, Llanos & Silva**

Lutzomyia (Helcocyrtomyia) machupicchu Martins, Llanos & Silva, 1975 – *Revista Brasileira de Biologia,* 35: 652-653 (M*).

PERU: Cuzco – Machupicchu§.

90. **Lutzomyia (Helcocyrtomyia) oswaldoi (Mangabeira)**

Flebotomus oswaldoi Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* 37: 190-193 (M*). Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* 37: 288-294, Plates I-VI (F*, P*, L*, E*).

Lutzomyia (Trichopygomyia) oswaldoi Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 312-314 (M*, F*, P*, L*).

BRAZIL: Amapá – Macapá; Pará – Belém, Santarém; *Ceará* – Araripe, Aurora, Barbalha, Baturité, Canindé, Caririaçu, Crateús, Crato, Fortaleza, Frade, Granja, Igatu, Independência, Ipu, Itapagé, Jaquaruana, Lavras, Maranguape, Massapé, Milagres, Missão Velha, Monsenhor Tabosa, Morada Nova, Nova Russas, Pacatuba, Pentecoste, Quixadá, Quixeramobim, Redenção, Russas, Santa Cruz do Norte, Santa Quitéria, Sobral, Tamboril, Tianguá, Uruburetama, Viçosa do Ceará; *Pernambuco* – Floresta; *Bahia* – Salvador; *Minas Gerais* – Bocaiuva§, Burarama de Minas§, Córrego d'Anta§, Espinosa§, Guarda Mor§, Itanhomi§, Janaúba§, Januária§, Jequitinhonha§, Lagoa Santa§, Mato Verde§, Monte Azul§, Monte Carmelo§, Montes Claros§, Pedro Leopoldo§, Porteirinhas§, Varzelândia§.

91. Lutzomyia (Helcocyrtomyia) paterna (Quate)

Phletomus paternus Quate, 1963 – *Journal of Paleontology*, 37: 113, 114 (M*). (Fossil in Mexican amber).

MEXICO: Chiapas – Simojovel (late Oligocene/early Miocene).

92. Lutzomyia (Helcocyrtomyia) peresi (Mangabeira)

Flebotomus peresi Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz*, 37: 190-193 (M*).

Phlebotomus (Brumptomyia) peresi Lucena & Almeida, 1965 – *Revista Brasileira de Malariologia e Doenças Tropicais*, 17: 261-262, 266, 268 (M*, F*).

Lutzomyia (Trichopygomyia) peresi Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 314 (M*).

? Phlebotomus sp. de Saül, Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane et du Territoire de l'Inini, Publication No.* 90: 9, 21 (F*).

FRENCH GUYANA: Haut Mana – Saül, Souvenir.

BRAZIL: Roraima: Caracaraí§; *Amazonas* – Manacapuru, Manaus; *Pará* – Belém, Gurupá, Irituia, João Coelho, Peixe Boi, Santarém; *Maranhão* – Turiaçu§; *Ceará* – Acaraú, Baturité, Brejo Santo, Cariri, Caririaçu, Capistrano, Crateús, Fortaleza, Granja, Independência, Ipu, Itapagé, Itapipoca, Jaguaruana, Lavras, Maranguape, Massapê, Mauriti, Missão Velha, Monsenhor Tabosa, Nova Russas, Pacatuba, Quixadá, Redenção, Russas, Santa Cruz do Norte, Santa Quitéria, Santanópolis, Sobral, Solonópolis, Tamboril, Tianguá, Uruburetama, Viçosa do Ceará; *Rio Grande do Norte* – Pendência; *Pernambuco* – Afogados da Ingazeira, Bezerros, Bom Jardim, Caruaru, Gravatá, Lagoa dos Gatos, Macaparana, Nazaré da Mata, Pedra, São José do Egito, Sertânia, Taquaritinga; *Minas Gerais* – Campanário (Jampruca)§, Januária.

93. Lutzomyia (Helcocyrtomyia) pratti (Vargas & Díaz Nájera)

Phlebotomus pratti Vargas & Díaz Nájera, 1951 – *Boletín del Instituto de Estudios Médicos y Biologicos*, 9: 19-21 (M*).

Lutzomyia (*Trichopygomyia*) *pratti* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 317 (M*).

MEXICO: *Guerrero* – Iguala; *Michoacan* – River Balsas Valley.

94. Lutzomyia (Helcocyrtomyia) rorotaensis (Floch & Abonnenc)

Phlebotomus rorotaensis Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 90: 5-7, 18-19 (M*, F*).

Phlebotomus sp. de Rorota, Floch & Abonnenc, 1941 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 28: 10-11 (F*).

Lutzomyia (*Trichopygomyia*) *trinidadensis* (*pro parte*) Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102.

Lutzomyia (*Trichopygomyia*) *oswaldoi* (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 312.

COLOMBIA: *Antioquia* – Anorí, Mutatá; *Valle* – Buenaventura, Lower Anchicaya Dam.

FRENCH GUYANA: *Cayenne* – Baduel, Cabassou, Crique Anguille, Matoury, Montabo, Rorota; *Haut Approuague* – Balourou, Saut Conori, Saut Japigny, Saut Machicou, Souvenir; *Oyapock* – Maripa, Saint Georges, Tampac; *Sinnamary* – Adieu-Vat, Saint Elie, Saut Tigre.

BRAZIL: *Roraima* – Caracaraí§.

95. Lutzomyia (Helcocyrtomyia) sordellii (Shannon & del Ponte)

Phlebotomus Sordellii Shannon & del Ponte, 1927 – *Revista del Instituto Bacteriológico del Departamento Nacional de Higiene*, 4: 730 (M, F).

Lutzomyia (*Trichopygomyia*) *sordellii* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102.

ARGENTINA: *Chaco* – Resistencia.

96. Lutzomyia (Helcocyrtomyia) trinidadensis (Newstead)

Phlebotomus trinidadensis Newstead, 1922 – *Annals of Tropical Medicine and Parasitology,* 16: 47 (M*, F*). Fairchild & Hertig, 1948 – *Annals of the Entomological Society of America,* 41: 253, 255-257 (M*, F*).

Lutzomyia (*Trichopygomyia*) *trinidadensis* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 321 (M*, F*, P, L*).

Phlebotomus (*Neophlebotomus*) *cruciatus* Dyar, 1929 – *American Journal of Hygiene,* 10: 119, 124.

Phlebotomus yucatanensis Galliard, 1934 – *Annales de Parasitologie Humaine et Comparée,* 12: 1-6 (M*, F*).

Phlebotomus yucatanensis var. *baduelensis* Floch & Abonnenc, 1941 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 15:

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

4-7 (M*). Floch & Abonnenc, 1941 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 28: 1-3 (F*).

Phlebotomus longipalpis Ristorcelli & van Ty, 1941 – *Annales de Parasitologie Humaine et Comparée*, 18: 72 and 252-254 (F*).

Flebotomus villelai Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz*, 37: 196-198 (M*).

Phlebotomus villelai Dampf, 1947 – *Anales de la Escuela Nacional de Ciencias Biologicas*, 4: 432, 449 (F*).

Phlebotomus baduelensis Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 90: 2-4, 16-17 (M*, F*).

MEXICO: *Chiapas* – Palenque; *Yucatan* – Chichen Itza.

BELIZE: Augustine§, Baking Pot§, Big Falls§, Benque Viejo – Arenal Road§, Caves Branch§, Central Farm§, mile 8 & mile 10-11 Chiquibul Road§, Esperanza§, Guacamallo§, mile 48 Hummingbird Highway§, Iguana Creek§, Millionario§, Mountain Pine Ridge§, Never Delay§, Never Delay road§, Rio Grande (8 km north of Punta Gorda)§, Roaring River§, San Antonio (Cayo District)§, San Antonio (Toledo District)§, San Pedro Colombia§, Sibun Camp§.

HONDURAS: Tela (Lancetilla Valley).

NICARAGUA: Villa Somoza.

COSTA RICA: Esquinas, Finca Socorrito, Jimenez de Guápiles, Palmar, San Carlos.

PANAMA: *Colon* – Quebrada Bonita; *Darien* – Altos de Quia (Pinogana District); *Canal Zone* – Gamboa, Limbo Field Station.

COLOMBIA: *Antioquia* – Anorí, Chigorodó, Mutatá; *Bolivar* – Mompós, Simití; *Boyacá* – Puerto Boyacá; *Caldas* – La Dorada, Victoria; *Cesar* – Codazzi, Valledupar; *Cundinamarca* – La Mesa, Puerto Salgar, Tocaima; *Guajira* – Maicao, Uribia, Urumita; *Huila* – Baraya, La Plata, Neiva, Palermo, Pitalito, Tello; *Magdalena* – Mamatoco, Minca, Parque Nacional Tayrona, Rio Don Diego, Santa Marta; *Meta* – Guamal, Villavicencio; *Nariño* – Valle de Capulí; *Norte de Santander* – Cúcuta, Villa del Rosario; *Santander* – Güepsa, Lebrija, San Vicente de Chucurí; *Tolima* – Armero, Dolores, Honda, Melgar, Purificación, Saldaña.

VENEZUELA: *Aragua* – Choroni, Rancho Grande; *Falcon* – Mene de Mauroa; *Lara* – Duaca; *Miranda* – Guatopo; *Nueva Esparta* – Isla de Margarita; *Sucre* – Montes (Cumanacoa); *Yaracuy* – San Felipe; *Zulia* – Bachaquero, Rio Negro, Selva de Tamanaco, Zipayare.

TRINIDAD: Bush Bush Forest.

FRENCH GUYANA: *Cayenne* – Baduel, Cabassou, Illet la Mère, Montabo, Rorota; *Sinnamary* – St. Elie.

PERU: *Cuzco* – Chacoc, Cuquipata, Pilcopata§; *Loreto* – Pucallpa§; *Madre de Dios* – Iberia§.

BRAZIL: *Roraima* – Boa Vista§, Caracaraí§; *Amapá* – Macapá; *Acre* – Feijó§, Rio Branco§; *Amazonas* – Manaus, Parintins; *Rondônia* – Guajará Mirim§, Porto Velho§; *Pará* – Abaetetuba, Belém, Igarapé Açu, Irituia, João Coelho, Monte Alegre, Óbidos, Ourém, Peixe Boi, Santarém, São Domingos do Capim, São Miguel do Guamá; *Ceará* – Aurora, Beberibe, Fortaleza, Ipu, Itapipoca, Maranguape, Massapê, Pacatuba, Pentecoste, Santa Cruz do Norte, Santanople; *Rio Grande do Norte* – Açu; *Bahia* – Feira de Santana.

BOLIVIA: *La Paz* – Los Yungas (Suique, Teoponte).

97. Lutzomyia (Helcocyrtomyia) zikani (Barretto)

Phlebotomus zikani Barretto, 1950 – *Folia Clinica et Biologica*, **16**: 143-145, 147 (M*, F*).

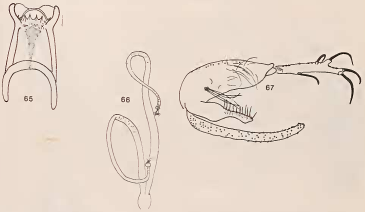
Lutzomyia (*Trichopygomyia*) *zikani* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 325-326 (M*, F*).

BRAZIL: *Espírito Santo* – Alegre (Fazenda Jerusalém).

Series *vexator*

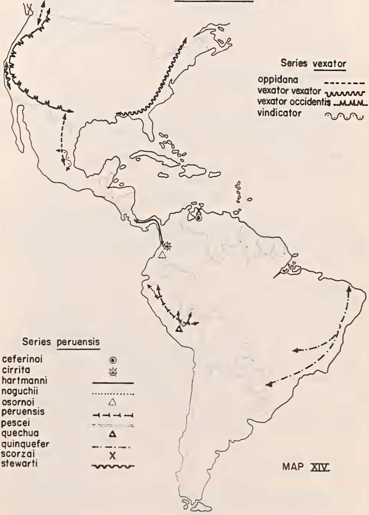
(Figs. 65-57; Map XIV)

Cibarium of the female with few or many very fine vertical teeth which, frequently, are so small that they can be overlooked. Body of the spermatheca in the shape of a simple capsule; individual spermathecal duct long; common duct lacking.



Figs 65-67. Subgenus *Helcocyrtomyia*, series *vexator*. *L. vexator*: female – cibarium (65), spermathecae and ducts (66); male – genitália (67).

Subgenus **HELCOCYRTOMIA** (in part)


Series vexator
oppidana
vexator vexator
vexator occidentis
vindicator
Series peruensis
ceferinoi
cirrita
hartmanni
noguchii
osornoi
peruensis
pescei
quechua
quinquefer
scorzai
X
stewarti

MAP XIV

98. **Lutzomyia (Helcocyrtomyia) oppidana (Dampf)**

Phlebotomus oppidanus Dampf, 1944 – *Revista de la Sociedad Mexicana de Historia Natural,* 5: 247-248, Plates V, VI (F*). Fairchild & Hertig, 1957 – *Annals of the Entomological Society of America,* **50**: 326 (M & F in keys), 330 (M*).

Lutzomyia (*Lutzomyia*) *oppidana* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 263 (M*, F*).

CANADA: *British Columbia* – Kamloops.

UNITED STATES: *Texas* – Marfa (Presidio County), Shafter (Presidio County); *Washington* – Othello (Adams County), Snake River (Whitman County).

MEXICO: *Distrito Federal* – San Jacinto; *Nuevo Leon* – Monterrey (Gruta de Garcia).

99. **Lutzomyia (Helcocyrtomyia) vexator (Coquillett)**

Flebotomus vexator Coquillett, 1907 – *Entomological News,* 18: 102 (M, F). Mangabeira & Galindo, 1944 – *American Journal of Hygiene,* 40: 183-184, Plates I, III (M*, F*).

Lutzomyia (*Lutzomyia*) *vexatrix* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 100. Forattini, 1973 – "Entomologia Médica, 4º Volume": 272 (M*, F*).

CANADA: *Ontario* – Black Lake (N. Burgess Township).

UNITED STATES: *Florida* – Gainesville (Alachua County); *Louisiana* – Ansley (Jackson County); *Maryland* – Plummer's Island; *Virginia* – Paris (Fauquier County).

MEXICO: *Sonora* (after Dampf, 1944 – without locality).

99a. **Lutzomyia (Helcocyrtomyia) vexator occidentis** (Fairchild & Hertig)

Phlebotomus vexator occidentis Fairchild & Hertig, 1957 – *Annals of the Entomological Society of America,* **50**: 324 (M*), 326 (M & F in keys).

CANADA: *Alberta* – Police Creek.

UNITED STATES: *California* – Livermore, Strawberry Canyon (Alameda County); Byron, Marsh Creek, Walnut Creek (Contra Costa County); Bakersfield (Kern County); Fairfax (Mann County); University of California Hopland Field Station (Mendocino County); Alturas (Modoc County); Topaz Lake (Mono County); Hastings Reservation (Montery County); Santa Margarita (San Luis Obispo County); Woodside (San Mateo County); Solano County; Fillmore (Ventura County); Capay (Yolo County); *Texas* – Fredericksburg (Gillespie County); Garner State Park (Uvalde County); *Washington* – Othello (Adams County); Snake River (Whitman County).

100. **Lutzomyia (Helcocyrtomyia) vindicator (Dampf)**

Phlebotomus vindicator Dampf, 1944 – *Revista de la Sociedad Mexicana de Historia Natural,* 5: 248-249, Plates VII, VIII (F*). Dampf, 1947 – *Revista de la Sociedad Mexicana de Historia Natural,* 8: 206-208, Plates XXIV, XXV (M*, F*).

Lutzomyia (*Lutzomyia*) *vinaicatrix* (*sic*) Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 100.

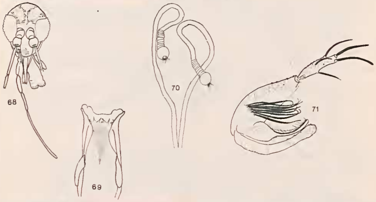
Lutzomyia (*Lutzomyia*) *vindicatrix* Forattini, 1973 – "Entomologia Médica, 4º Volume": 273 (M*, F*).

MEXICO: *Distrito Federal* – Bosque de Chapultepec; *Morelos* – Cañon de Lobos (near Cuernavaca), Cuautla, Rio Balsas; *Caxaca* – Ixtlan, Yolox.

Series *peruensis*

(Figs. 68-71; Map XIV)

Cibarium of the female with small vertical teeth, sometimes difficult to see. Body of the spermatheca annulated, with a globose terminal segment; individual spermathecal duct long; common duct very short or absent.



Figs. 68-71. Subgenus *Helcocyrtomyia*, series *peruensis*. *L. quinquefer*: female – head (68), cibarium (69), spermathecae and ducts (70); male – genitalia (71).

101. Lutzomyia (Helcocyrtomyia) ceferinoi (Ortiz & Alvarez)

Phlebotomus ceferinoi Ortiz & Alvarez, 1963 – *Salud Pública*, **5**: 285-286, 288 (M*).

Lutzomyia ceferinoi Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 103. Forattini, 1973 – "Entomologia Médica, 4º Volume": 351 (M*).

VENEZUELA: *Portuguesa* – Carretera a Biscucuy.

102. Lutzomyia (Helcocyrtomyia) cirrita Young & Porter

Lutzomyia cirrita Young & Porter, 1974 – *Florida Entomologist*, **57**: 321-325 (M*, F*).

COLOMBIA:

103. **Lutzomyia (Helcocyrtomyia) hartmanni (Fairchild & Hertig)**

Phlebotomus hartmanni Fairchild & Hertig, 1957 – *Annals of the Entomological Society of America,* 50: 325, 326, 328 (M*, F*).

Psychodopygus (*Trichophoromyia*) *hartmanni* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 466, 468 (M*, F*, L).

PANAMA: *Bocas del Toro* – Almirante; *Colon* – Cerro Santa Rita; *Darien* – Altos de Quia (Pinogana District); *Panama* – Cerro Campana; *Canal Zone* – Camp Pina, Fort Sherman Reservation.

COLOMBIA: *Antioquia* – Mutatá; *Valle* – Buena Ventura, Lower Anchicayo Dam, Rio Raposo.

104. **Lutzomyia (Helcocyrtomyia) noguchii (Shannon)**

Phlebotomus (*Brumptomyia*) *noguchii* Shannon, 1929 – *American Journal of Hygiene,* 10: 83, 85 (M*, F*).

Phlebotomus noguchii Fairchild & Hertig, 1957 – *Annals of the Entomological Society of America,* 50: 326, 330 (M*, F*).

Lutzomyia (*Lutzomyia*) *noguchii* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 261 (M*, F*).

PERU: *Ancash* – Callejon de Huaylas, Cañon del Pato; *Lima* – Valle Chilón (Km 47, railroad Canta – San Miguel), Valle Rimac (Chauanto, Lanca, Matucana, Puente Carrión, San Mateo, Surco, Tambo Viso, Tornamesa), Valle Santa Eulalia (Barbablanca, Barbablanca/Calahuanca road, Huinco); *Piura* – Huancabamba.

105. **Lutzomyia (Helcocyrtomyia) osornoi (Ristorcelli & van Ty)**

Phlebotomus osornoi Ristorcelli & van Ty, 1941 – *Annales de Parasitologie Humaine et Comparée,* 18: 72-73 and 260-263 (F*). Rozeboom, 1947 – *Proceedings of the Entomological Society of Washington,* 49: 177-179 (M*, F*).

Lutzomyia (*Lutzomyia*) *osornoi* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 263, 265 (M*, F*).

Phlebotomus montoyai Sherlock, 1962 – *Memórias do Instituto Oswaldo Cruz,* 60: 328 (M*). (New synonymy).

Lutzomyia montoyai Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 103.

Lutzomyia (*Lutzomyia*) *noguchii* (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 261 (*montoyai* as a junior synonym of *noguchii*).

COLOMBIA: *Nariño* – Tuquerres (Chirristis), Valle de Capuli.

106. **Lutzomyia (Helcocyrtomyia) peruensis (Shannon)**

Phlebotomus (*Brumptomyia*) *peruensis* Shannon, 1929 – *American Journal of Hygiene,* 10: 83, 85, 87 (M*, F*).

Phlebotomus peruensis Fairchild & Hertig, 1957 – *Annals of the Entomological Society of America,* **50**: 325, 326 (M*, F*).

Lutzomyia (Lutzomyia) peruensis Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 100. Forattini, 1973 – "Entomologia Médica, 4º Volume": 234 (M*, F*).

PERU: Ancash – Chancos, Yungay (Callejon de Huaylas); *Cuzco* – Andahuaylillas, Calca, Chacoc, Chilca, Cuquipata, Cusipata, Cuzco, Huambutio, Ollantaytambo, Pilcopata, Pisac, Quillabamba§, Ququizana, Urcos, Urubamba; *Huánuco* – Tingo-Maria§; *Lima* – Valle Chilón (Chirigano, San Mateo), Valle Rimac (Lanca, Matucana, Puente Carrión, Surco, Tamboviso, Tornamesa), Valle Santa Eulalia (Barbablanca, Callahuanca§, Huinco, Vicas).

107. **Lutzomyia (Helcocyrtomyia) pescei (Hertig)**

Phlebotomus pescei Hertig, 1943 – *American Journal of Hygiene,* **37**: 248-249 (F*). Fairchild & Hertig, 1957 – *Annals of the Entomological Society of America,* **50**: 326, 332 (M*, F*).

Lutzomyia (Lutzomyia) pescei Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 100. Forattini, 1973 – "Entomologia Médica, 4º Volume": 237 (M*, F*).

PERU: Apurimac – Andahuaylas; *Ayacucho* – Las Huatatas, Rio Pampas; *Cuzco* – Calca, Coya, Huayllabamba, Ollantaytambo, Paschar, Pisac, San Salvador, Urcos, Urubamba, Yucay; *Junin* – Huancayo.

108. **Lutzomyia (Helcocyrtomyia) quechua Martins, Llanos & Silva**

Lutzomyia quechua Martins, Llanos & Silva, 1975 – *Revista Brasileira de Biologia,* **35**: 646-649 (M*, F*).

PERU: Cuzco – Quillabamba§.

109. **Lutzomyia (Helcocyrtomyia) quinquefer (Dyar)**

Phlebotomus (Brumptomyia) quinquefer Dyar, 1929 – *American Journal of Hygiene,* **10**: 114, 124 (M*). Lucena & Almeida, 1965 – *Revista Brasileira de Malariologia e Doenças Tropicais,* **17**: 259-260 (M*, F*).

Phlebotomus quinquefer Fairchild & Hertig, 1957 – *Annals of the Entomological Society of America,* **50**: 326, 332 (M*, and synonymy).

Lutzomyia (Lutzomyia) quinquefer Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 100. Forattini, 1973 – "Entomologia Médica, 4º Volume": 266 (M*, F*).

Flebotomus Rickardi Costa Lima, 1936 – *Revista Médico-Cirúrgica do Brasil,* 44: 288 (M*).

BRAZIL: Ceará – Araripe, Crato, Fortaleza, Ipu, Itapagé, Juazeiro do Norte, Maranguape, Massapê, Nova Russas, Pacatuba, Russas, Santa Cruz do Norte, Santa Quitéria, Sobral, Tianguá, Viçosa do Ceará; *Pernambuco* – Bezerros, Macaparana, Nazaré da Mata, Pedra, Sertânia; *Bahia* – Barreiras§; *Espírito Santo* – Alegre (Fazenda Jerusalém), Mimoso do Sul, São João (?); *Rio de*

Janeiro – Itaperuna§, Petrópolis§; *Minas Gerais* – Além Paraíba§, Arcos§, Arinos§, Burarama de Minas§, Buritizeiros§, Campanário§, Caratinga§, Conselheiro Pena§, Corinto§, Coronel Fabriciano§, Estrela d'Alva§, Galileia§, Itanhomi§, Jaboticatubas§, Janaúba§, Januária§, Jequitinhonha§, Juiz de Fora§, Lagoa Santa§, Leopoldina§, Marlieria§, Matias Barbosa§, Matozinhos§, Monjolos,§, Monte Azul§, Montes Claros§, Peçanha§, Pedro Leopoldo§, Prudente de Morais§, Simão Pereira§, Tarumirim§, Unaí§, Volta Grande; *Goiás* – Amaro Leite§, Itumbiara§, Sítio d'Abadia§; *Mato Grosso* – Anhanduí§, Aquidauana§, Barra do Bugres§, Camapuan§.

ARGENTINA: Misiones – Cataratas del Iguazú.

110. **Lutzomyia (Helcocyrtomyia) scorzai (Ortiz)**

Phlebotomus scorzai Ortiz, 1965 – *Acta Biologica Venezuelica*, **5**: 28-30, 32-35 (M*, F*).

Lutzomyia (Lutzomyia) scorzai Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 100. Foratiini, 1973 – "Entomologia Médica, 4º Volume": 267 (M*, F*).

VENEZUELA: Aragua – Rancho Grande.

111. **Lutzomyia (Helcocyrtomyia) stewarti (Mangabeira & Galindo)**

Flebotomus stewarti Mangabeira & Galindo, 1944 – *American Journal of Hygiene*, **40**: 185-188, 191, Plates II, III (M*, F*).

Lutzomyia (Lutzomyia) stewarti Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 100. Forattini, 1973 – "Entomologia Médica, 4º Volume": 270-271 (M*, F*).

UNITED STATES: California – Calaveras Creek, Livermore (Alameda County); Marsh Creek, Byron (Contra Costa County); Bakersfield, Caliente Creek (Kern County); University of California Hopland Field Station (Mendocino County); Hasting Reservation (Monterey County); Borrego Springs, Culp Valley (San Diego County).

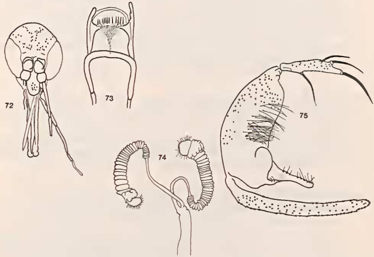
MEXICO: (after Dampf, 1944 – without locality).

Subgenus TRICHOPHOROMYIA Barretto

(Figs. 72-75; Map XV)

Trichophoromyia Barretto, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo*, **4**: 96 (subgenus defined with *Flebotomus ubiquitalis* Mangabeira as the type species). Sherlock & Guitton, 1970 – *Revista Brasileira de Biologia*, **30**: 141 (subgenus reviewed and revised). Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 105 (subgenus redefined as a member of the genus *Psychodopygus* Forattini). Forattini, 1973 – "Entomologia Médica, 4º Volume": 415-417, 452, 454, 457, 459, 462, 463, 465, 468, 471, 472, 474, 477, 478, 481.

Length of the fifth palpal segment is close to the length of the third segment, slightly longer than the third segment in some species, somewhat shorter than the third segment in other species, or with the third and fifth segments equal in yet other species. Palpal segment 5 invariably shorter than the combined lengths of segments 3 and 4. Delta long, more than half the length of *alpha*.



Figs. 72-75. Subgenus *Trichophoromyia*. *L. ubiquitalis*: female – head (72), cibarium (73), spermathecae and ducts (74); male – genitalia (75).

Cibarium of the female with 8-14 horizontal teeth and a variable number of vertical teeth; pigment patch triangular; cibarial arch complete. Body of the spermatheca annulate, with a large distal segment and a well-developed "head"; individual spermathecal duct long; common duct long, short or absent.

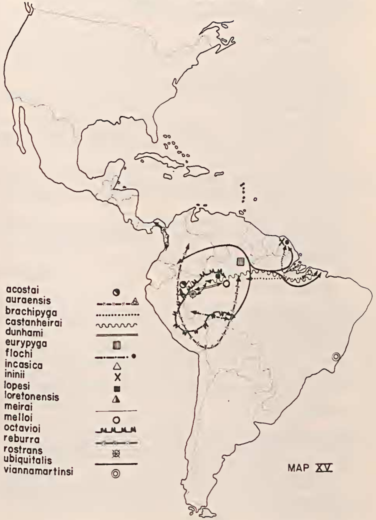
Dististyle of the male with four well-developed spines arising at different levels; subterminal seta lacking. Basistyle with one or two groups of spine-like or hair-like setae, or with a mixture of these two type of hairs; in some species, basistyle wide and strongly curved convexly. Paramere simple, or bifurcated, or with a dorsal arm, or with a modified distal tip. Lateral lobe simple.

112. **Lutzomyia (Trichophoromyia) acostai (Llanos)**

Phlebotomus acostai Llanos, 1966 – *Revista Brasileira de Malariologia e Doenças Tropicais*, 18: 369 (new name for *Phlebotomus townsendi* Llanos, *nec* Ortiz).

Psychodopygus (*Trichophoromyia*) *acostai* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 454 (M*).

Subgenus TRICHOPHOROMYIA


acostai
auraensis
brachipyga
castanheirai
dunhami
eurypyga
flochi
incasica
ininii
lopesi
loretonensis
meirai
melloi
octavioi
reburra
rostrans
ubiquitalis
viannamartinsi

MAP XV

Phlebotomus townsendi Llanos, 1964 – *Revista Brasileira de Biologia*, **24**: 377-378 (M*).
PERU: *Loreto* – Maynas.

113. **Lutzomyia (Trichophoromyia) auraensis** (Mangabeira)
Flebotomus auraensis Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz*, **37**: 161-165 (M*).
Psychodopygus (*Trichophoromyia*) *auraensis* Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 457 (M*, F*).
COLOMBIA: *Caquetá* – Solano, Tres Esquinas.
PERU: *Cuzco* – Pilcopata§, Quellouno§; *Loreto* – Dos de Mayo, Pucallpa§; *Madre de Dios* – Iberia§.
BRAZIL: *Amazonas* – Manicoré; *Acre* – Cruzeiro do Sul§, Rio Branco§; *Rondônia* – Guajará Mirim§, Porto Velho§, *Pará* – Belém, Castanhal§, Irituia, Peixe Boi.
BOLIVIA: *La Paz* – Los Yungas.

114. **Lutzomyia (Trichophoromyia) brachipyga** (Mangabeira)
Flebotomus brachipygus Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz*, **37**: 173-176 (M*).
Psychodopygus (*Trichophoromyia*) *brachipygus* Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 459-460 (M* only; F* = *viannamartinsi*).
FRENCH GUYANA: Grand Santi (Aoua).
BRAZIL: *Amazonas* – Manacapuru; *Pará* – Abaetetuba, Altamira§, Belém, São Domingos do Capim.

115. **Lutzomyia (Trichophoromyia) castanheirai** (Damasceno, Causey & Arouck)
Flebotomus castanheirai Damasceno, Causey & Arouck, 1945 – *Memórias do Instituto Oswaldo Cruz*, **43**: 15-18 (M*).
Psychodopygus (*Trichophoromyia*) *castanheirai* Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 462-463 (M*).
BRAZIL: *Amazonas* – Coari, Fonte Boa, Manaus, São Paulo de Olivença, Tefé; *Pará* – Belém, Irituia, João Coelho, Óbidos, Ourém, Peixe Boi, São Miguel do Guamá.

116. **Lutzomyia (Trichophoromyia) dunhami** Causey & Damasceno
Flebotomus dunhami Causey & Damasceno, 1945 – *Memórias do Instituto Oswaldo Cruz*, **42**: 18-19, 27 (M*).
Psychodopygus (*Trichophoromyia*) *dunhami* Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 463, 465 (M*).
BRAZIL: *Amazonas* – Benjamim Constant, Tefé.

117. **Lutzomyia (Trichophoromyia) eurypyga** Martins, Falcão & Silva

Lutzomyia eurypygus Martins, Falcão & Silva, 1963 – *Revista Brasileira de Biologia,* 23: 336-339 (M*, F*).

Psychodopygus (*Trichophoromyia*) *eurypygus* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 465 (M*, F).

BRAZIL: *Roraima* – Caracaraí§.

118. **Lutzomyia (Trichophoromyia) flochi** (Abonnenc & Chassignet)

Phlebotomus flochi Abonnenc & Chassignet, 1948 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 167: 1-2, 4 (M*).

Psychodopygus (*Trichophoromyia*) *flochi* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entolomogia Médica, 4º Volume": 465 (M*).

FRENCH GUYANA: *Cayenne* – Baduel.

BRAZIL: *Acre* – Cruzeiro do Sul§; *Rondônia* – Guajará Mirim§.

119. **Lutzomyia (Trichophoromyia) incasica** (Llanos)

Phlebotomus incasicus Llanos, 1966 – *Revista Brasileira de Malariologia e Doenças Tropicais,* 18: 369 (new name for *Phlebotomus adleri* Llanos, *nec* Theodor).

Psychodopygus (*Trichophoromyia*) *incasicus* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 468-469 (M*).

Phlebotomus adleri Llanos, 1964 – *Revista Brasileira de Biologia,* 24: 379-380 (M*).

PERU: *Loreto* – Cahuide.

120. **Lutzomyia (Trichophoromyia) ininii** (Floch & Abonnenc)

Phlebotomus ininii Floch & Abonnenc, 1943 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 61: 20-22 (M*). Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 83: 6-7, 18 (F*).

Psychodopygus (*Trichophoromyia*) *ininii* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 471 (M*, F).

Phlebotomus sp. Floch & Abonnenc, 1942 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 38: 6-7 (F*).

Phlebotomus sp. B du Gallion, Floch, 1943 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 60: 62 (F).

FRENCH GUYANA: *Caux; Cayenne* – Crique Anguille; *Haute Mana* – Souvenir.

121. **Lutzomyia (Trichophoromyia) lopesi** (Damasceno, Causey & Arouck)

Flebotomus lopesi Damasceno, Causey & Arouck, 1945 – *Memórias do Instituto Oswaldo Cruz,* 43: 13-15 (M*).

Psychodopygus (*Trichophoromyia*) *lopesi* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 471-472 (M*).

BRAZIL: *Amazonas* – Tefé.

122. **Lutzomyia (Trichophoromyia) loretonensis** (Llanos)

Phlebotomus loretonensis Llanos, 1964 – *Revista Brasileira de Biologia,* 24: 375-377 (M*).

Psychodopygus (*Trichophoromyia*) *loretonensis* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 472 (M*).

PERU: *Loreto* – La Libertad, Rosario, Serafin Filomeno (Maynas).

123. **Lutzomyia (Trichophoromyia) meirai** (Causey & Damasceno)

Flebotomus meirai Causey & Damasceno, 1945 – *Memórias do Instituto Oswaldo Cruz,* 42: 654-656 (M*).

Psychodopygus (*Trichophoromyia*) *meirai* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 472 (M*).

BRAZIL: *Amazonas* – Benjamim Constant, São Paulo de Olivença.

124. **Lutzomyia (Trichophoromyia) melloi** (Causey & Damasceno)

Flebotomus melloi Causey & Damasceno, 1945 – *Memórias do Instituto Oswaldo Cruz,* 42: 20-24, 27 (M*).

Psychodopygus (*Trichophoromyia*) *melloi* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 474 (M*).

BRAZIL: *Amazonas* – Coari.

125. **Lutzomyia (Trichophoromyia) octavioi** (Vargas)

Phlebotomus octavioi Vargas, 1949 – *Revista del Instituto de Salubridad y Enfermedades Tropicales,* **10**: 267-268 (new name for *Flebotomus affinis* Mangabeira, *nec* Theodor).

Psychodopygus (*Trichophoromyia*) *octavioi* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105.

Lutzomyia octavioi Martins, Llanos & Silva, 1975 – *Revista Brasileira de Biologia,* 35: 659-662 (M*, F*).

Flebotomus affinis Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* 37: 165-168 (M*).

Psychodopygus (*Trichophoromyia*) *rostrans* (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 478.

PERU: *Cuzco* – Pilcopata§; *Huánuco* – Cachicoto; *Loreto* – San Antonio (Nauta).

BRAZIL: *Amazonas* – Coari, Fonte Boa; *Rondônia* – Guajará Mirim (Rio Mamoré)§.

126. **Lutzomyia (Trichophoromyia) reburra** (Fairchild & Hertig)

Phlebotomus reburrus Fairchild & Hertig, 1961 – *Annals of the Entomological Society of America*, 54: 246-248 (M*, F*).

Psychodopygus (*Trichophoromyia*) *reburrus* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 477-478 (M*, F*).

PANAMA: *Colon* – Rio Mandinga (Mandinga Yellow Fever Station); *Darien* – Altos de Quia, Tacarcuma Yellow Fever Station; *Panama* – Cerro Azul (La Zumbadora).

COLOMBIA: *Valle* – Buenaventura, Lower Anchicaya Dam, Rio Raposo.

127. **Lutzomyia (Trichophoromyia) rostrans** (Summers)

Phlebotomus rostrans Summers, 1912 – *Bulletin of Entomological Research*, 3: 209 (M, F).

Lutzomyia rostrans Lewis, 1967 – *Proceedings of the Royal Entomological Society of London* (Series B), 36: 134-136 (M*, F*).

Psychodopygus (*Trichophoromyia*) *rostrans* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 478, 480 (M*, F*).

BRAZIL: *Amazonas* – Rio Javari (Brazil-Peru frontier).

128. **Lutzomyia (Trichophoromyia) ubiquitalis** (Mangabeira)

Flebotomus ubiquitalis Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz*, 37: 158-161 (M*).

Psychodopygus (*Trichophoromyia*) *ubiquitalis* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 481 (M*, F*).

Phlebotomus basispinosus Barretto & Coutinho, 1943 – *Revista Brasileira de Biologia*, 3: 185-187 (M*).

Phlebotomus cauchensis Floch & Abonnenc, 1943 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 61: 22-24 (M*). Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 83: 5-6, 17 (F*).

COLOMBIA: *Caquetá* – Florencia.

VENEZUELA: *Territorio Federal Amazonas* – Atabapo (Ocamo)§.

FRENCH GUYANA: *Approuague* – Balourou, Caux, Saut Japigny; *Cayenne* – Crique Anguille; *Haute Mana* – Corocibo, Souvenir.

BRAZIL: *Roraima* – Caracaraí§; *Amapá* – Macapá; *Amazonas* – Coari, Fonte

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

Boa, Manaus§, Parintins, Tefé; *Rondônia* – Guajará Mirim§; *Pará* – Altamira§, Ananindeua, Belém, Benevides§, Castanhal§, João Coelho, Óbidos, Oriximiná§, Ourém, Peixe Boi, São Domingos do Capim, São Miguel do Guamá; *Maranhão* – Cururupu§.

129. **Lutzomyia (Trichophoromyia) viannamartinsi** Sherlock & Guitton

Lutzomyia (*Trichophoromyia*) *viannamartinsi* Sherlock & Guitton, 1970 – *Revista Brasileira de Biologia*, 30: 137-138 (M*, F*). *Phlebotomus brachypygus* Sherlock & Carneiro, 1962 – *Memórias do Instituto Oswaldo Cruz*, 60: 427-428 (F*).

Psychodopygus (*Trichophoromyia*) *brachipygus* (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 459.

BRAZIL: *Bahia* – Uruçuca.

Subgenus COROMYIA Barretto

(Map XVI)

Coromyia Barretto, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo*, 4: 97 (subgenus defined with *Phlebotomus vespertilionis* Fairchild & Hertig as the type species). Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 101 (subgenus redefined). Forattini, 1973 – "Entomologia Médica, 4º Volume": 273-292.

Lutzomyia (subgenus *pro parte*) Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 247, 252, 263.

Dampfomyia (*pro parte*) Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 100. Forattini, 1973 – "Entomologia Médica, 4º Volume": 329, 333.

Fifth palpal segment long, greater than the combined lengths of segments 3 and 4. Third antennal segment of many species very long, extending beyond the distal tip of the proboscis. Eyes of many species unusually small. All species very pale.

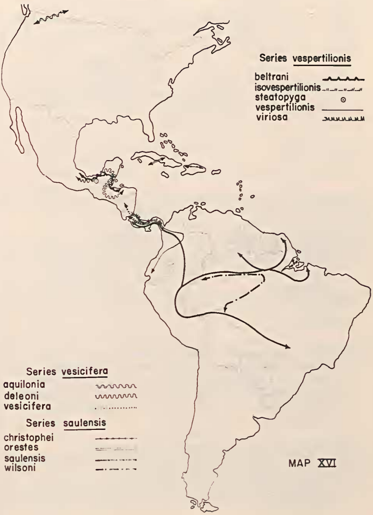
Series *vespertilionis*

(Figs. 76-79)

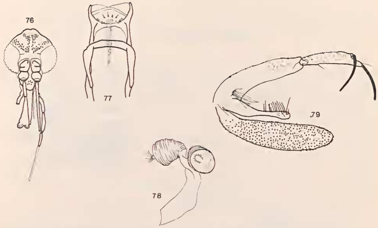
Cibarium of the female with four horizontal teeth, a row of vertical teeth and fine lateral teeth; pigment patch in the form of a narrow triangle; cibarial arch complete and flared laterally. Body of the spermatheca pear-shaped or barrel-shaped, weakly annulated or superficially rugose; individual spermathecal duct usually short (but longer than the body of the spermatheca in one species); common duct wide.

Dististyle of the male with two well-developed spines and one or two reduced spines; subterminal seta present in all but one species which has two terminal well-developed spines. Basistyle with an inner basal tuft of hair-like setae. Paramere simple. Genital pump and genital filaments weakly chitinized; tip of genital filament dilated or otherwise modified. Lateral lobe inflated, its length being only 3-7 times greater than the maximum width.

Subgenus COROMYIA


Series vespertilionis
beltrani
isovespertilionis
steatopyga
vespertilionis
viriosa
Series vesicifera
aquilonia
deleoni
vesicifera
Series saulensis
christophei
orestes
saulensis
wilsoni

MAP XVI



Figs. 76-79. Subgenus *Coromyia*, series *vespertilionis*. *L. vespertilionis:* female – head (76), cibarium (77), spermathecae and ducts (78); male – genitalia (79).

130. **Lutzomyia (Coromyia) beltrani** (Vargas & Díaz Nájera)

Phlebotomus beltrani Vargas & Díaz Nájera, 1951 – *Revista del Instituto de Salubridad y Enfermedades Tropicales,* **12**: 101-103 (M*). Fairchild & Hertig, 1958 – *Annals of the Entomological Society of America,* **51**: 511, 512, 514, 515 (M*, F*).

MEXICO: Chiapas – Palenque, Santa Maria Cintalapa; *Vera Cruz* – San Andrés Tuxtla.

HONDURAS: Tela.

130a. **Lutzomyia (Coromyia) beltrani** (Belize form) Williams

Lutzomyia beltrani (Belize form) Williams, 1976 – *Bulletin of Entomological Research,* **66**: 595-597.

BELIZE: Augustine§, Central Farm§, mile 8 and mile 10-11 Chiquibul Road§, Esperanza§, Millionario§, Never Delay road§, Roaring River§, San Antonio (Cayo District)§.

131. **Lutzomyia (Coromyia) isovespertilionis** (Fairchild & Hertig)

Phlebotomus isovespertilionis Fairchild & Hertig, 1958 – *Annals of the Entomological Society of America,* **51**: 513, 516 (M*, F).

Phlebotomus vespertilionis (pro parte) Fairchild & Hertig, 1947 – *Annals of the Entomological Society of America,* **40**: 619 (figure of terminalia = M of *isovespertilionis*).

PANAMA: Colon – Palenque; *Panama* – Cerro Campana, Cerro Jefe (La Victoria); *San Blas* – Camp Sasardi; *Canal Zone* – Barro Colorado Island, Chiva-Chiva Road, Cruces Trail (Canal Zone Forest Reserve), Juan Mina (Chagres River), Pequeni River (Madden Lake), Rio Cocoli, Rio del Medio (Rio Gatun).

132. **Lutzomyia (Coromyia) steatopyga** (Fairchild & Hertig)

Phlebotomus steatopygus Fairchild & Hertig, 1958 – *Annals of the Entomological Society of America,* 51: 511, 512, 515 (M*, F*).

MEXICO: Chiapas – Palenque.

133. **Lutzomyia (Coromyia) verspertilionis** (Fairchild & Hertig).

Phlebotomus vespertilionis Fairchild & Hertig, 1947 – *Annals of the Entomological Society of America,* 40: 617-619 (M, F*, M* = *isovespertilionis).* Fairchild & Hertig, 1958 – *Annals of the Entomological Society of America,* 51: 513, 514 (M*, F).

Lutzomyia (Coromyia) vespertilionis Forattini, 1973 – "Entomologia Médica, 4º Volume": 291 (M*, F*, P, L*).

COSTA RICA: El Molino de Guápiles, La Roca de Guápiles, Pacuare, Paso de Marcos, Turrialba.

PANAMA: Bocas del Toro – Changuinola District (United Fruit Company Plantation); *Colon* – Puerto Pilon, Quebrada Bonita; *Panama* – Arraijan, Bejuco, Cerro Campana, Chilibrillo bat caves (near Chilibre), Chorrera, La Victoria (Cerro Jefe, near Tocumen), Pacora; *Veraguas* – Santa Fé; *Canal Zone* – Chiva-Chiva Road, Cruces Trail (Canal Zone Forest Reserve), Cocoli, Gamboa, Gatuncillo (Chagres River region), Juan Mina Station (Chagres River region), Rio Pequeni (head of Madden Lake).

COLOMBIA: *Antioquia* – Anorí, Chigorodó, Mutatá; *Bolivar* – Simití; *Boyacá* – Puerto Boyacá; *Valle* – Buenaventura, Lower Anchicaya Dam, Rio Raposo.

ECUADOR – *Guayas* – Bucay (Cerro Cutuguay).

134. **Lutzomyia (Coromyia) viriosa** (Fairchild & Hertig).

Phlebotomus viriosus Fairchild & Hertig, 1958 – *Annals of the Entomological Society of America,* 51: 510, 512, 513, 515 (M*, F*).

COSTA RICA: La Roca de Guápiles, Pacuare (Moravia).

PANAMA: Bocas del Toro – Almirante, Luca's Place (Water Valley).

Series *vesicifera*

(Figs. 80-82).

Cibarium of the female with four finely-pointed or two bluntly rounded horizontal teeth, with or without vertical teeth, and with many lateral teeth; pigment patch in the form of a narrow triangle; cibarial arch complete and flared laterally. Body of the spermatheca barrel-shaped in one species, but pear-shaped with a large lateral vesicle in the other two.

Dististyle of the male with three or four well-developed spines, and subterminal seta. Basistyle with an inner basal tuft of hair-like setae. Paramere with a tooth-like, ventral projection. Lateral lobe only slightly inflated.

135. **Lutzomyia (Coromyia) aquilonia** (Fairchild & Harwood)

Phlebotomus aquilonius Fairchild & Harwood, 1961 – *Proceeding of the Entomological Society of Washington,* 63: 241, 244-245 (M*, F*).

Lutzomyia (Lutzomyia) aquilonia Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 247-248 (M*, F*).

CANADA: Alberta – Police Creek.

UNITED STATES: Washington – Othello (Adams County), Snake River (Whitman County).

136. **Lutzomyia (Coromyia) deleoni** (Fairchild & Hertig)

Phlebotomus deleoni Fairchild & Hertig, 1947 – *Annals of the Entomological Society of America,* 40: 618, 622-623 (M*, F*).

Lutzomyia (Dampfomyia) deleoni Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 100. Forattini, 1973 – "Entomologia Médica, 4º Volume": 329 (M*, F*).

MEXICO: Chiapas – Palenque, Santa Maria; *Vera Cruz* – Catemaco.

GUATEMALA: Peten – Canchacan.

BELIZE: Augustine§, Baking Pot§, Benque Viejo – Arenal Road§, Central Farm§, mile 8 & mile 10-11 Chiquibul Road§, Gallon Jug§, mile 48 Hummingbird Highway§, Millionario§, Mountain Pine Ridge§, Never Delay§, Never Delay road§, Rio Grande (8 km north of Punta Gorda)§, Roaring River§, San Antonio (Cayo District)§.

HONDURAS: Tela (Lancetilla Valley).

EL SALVADOR: Cabañas – Victoria.

137. **Lutzomyia (Coromyia) vesicifera** (Fairchild & Hertig)

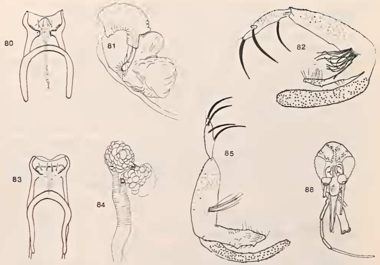
Phlebotomus vesiciferus Fairchild & Hertig, 1947 – *Annals of the Entomological Society of America,* 40: 618, 620-622 (M*, F*).

Lutzomyia (Dampfomyia) vesicifera Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 100. Forattini, 1973 – "Entomologia Médica, 4º Volume". 333, 335 (M*, F*).

NICARAGUA: Villa Somoza.

COSTA RICA: Jiménez de Guápiles, La Roca de Guápiles, Paso de Marcos, San Juan de Miramar.

PANAMA: Bocas del Toro – Bocas del Toro, Changuinola District; *Colon* – Puerto Pilon; *Panama* – Cerro Campana, Cerro Jefe (La Victoria); *Veraguas* – Cerro Tute (Santa Fé); *Canal Zone* – Cruces Trail, Juan Mina, Limbo Field Station, Canal Zone Police Substation (Rio Pequeni, Madden Lake).



Figs. 80-86. Subgenus *Coromyia*, series *vesicifera* (80-82) and *series saulensis* (83-86). *L. vesicifera:* female – cibarium (80), spermatheca and duct (81); male – genitalia (82). *L. saulensis:* female – cibarium (83), spermathecae and ducts (84), head (86); male – genitalia (85).

Series *saulensis*

(Figs. 83-86)

Cibarium of the female with four horizontal teeth, with few or many vertical teeth, and with lateral teeth; pigment area well defined; cibarial arch complete. Body of the spermatheca carrot-shaped, narrowest at distal end; walls of the spermatheca superficially annulated or with bubble-like expansions (like a bunch of grapes).

Dististyle of the male with three or four well-developed spines and a subterminal seta. Basistyle with an inner basal tuft of hair-like setae. Paramere simple and narrow, or thickened for all or part of its length.

138. **Lutzomyia (Coromyia) christophei** (Fairchild & Trapido)

Phlebotomus christophei Fairchild & Trapido, 1950 – *Annals of the Entomological Society of America,* **43**: 409-410 (M*, F*).

Lutzomyia (Lutzomyia) christophei Forattini, 1971 – *Papéis Avulsos de Zoologia,* **24**: 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 252 (M*, F*).

DOMINICAN REPUBLIC: Seibo – Hato Mayor, Sabana de la Mar.

HAITI – Milot (Cap Haitien).

139. **Lutzomyia (Coromyia) orestes** (Fairchild & Trapido)
Phlebotomus orestes Fairchild & Trapido, 1950 – *Annals of the Entomological Society of America*, 43: 409-410 (M*).
Lutzomyia orestes Lewis, 1967 – *Journal of Natural History*, 2: 74-76 (M*, F*).
Lutzomyia (Lutzomyia) orestes Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 263 (M*, F*).
CUBA: Camaguey – Finca El Milagro.
CAYMAN ISLANDS: Cayman Brac – Bamboo Bay, Stake Bay.

140. **Lutzomyia (Coromyia) saulensis** (Floch & Abonnenc)
Phlebotomus saulensis Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane Française et du Territoire de l'Inini*, Publication No. 75: 11-12, 20 (M*).
Lutzomyia (Dampfomyia) saulensis Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 100. Forattini, 1973 – "Entomologia Médica, 4º Volume": 333 (M*, F*, L*).
Phlebotomus pinealis Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane Française et du Territoire de l'Inini*, Publication No. 81*11-12, 18 (F*).
COSTA RICA: Suerre de Guápiles.
PANAMA: Darien – Altos de Quia (Pinogana District).
COLOMBIA: Caquetá – Solano; *Santander* – San Vicente de Chucurí; *Valle* – Lower Anchicaya Dam, Rio Raposo.
FRENCH GUYANA: Cayenne – Crique Anguille; *Haute Mana* – Saül (Souvenir).
PERU: Cuzco – Pilcopata§; *Loreto* – Pucallpa§, Quistococha, Serafin Filomeno; *Madre de Dios* – Iberia§.
BRAZIL: Roraima – Caracaraí§; *Amazonas* – Fonte Boa, Manaus§, São Paulo de Olivença, Tefé; *Acre* – Cruzeiro do Sul§, Feijó§, Rio Branco§; *Rondônia* – Guajará Mirim§; *Pará* – Belém, Irituia, Marabá, Santarém, São Domingos do Capim; *Goiás* – Itumbiara§; *Mato Grosso* – Barra do Bugres§, Barra do Garças§, Rosário d'Oeste§.

141. **Lutzomyia (Coromyia) wilsoni** (Damasceno & Causey)
Flebotomus wilsoni Damasceno & Causey, 1945 – *Memórias do Instituto Oswaldo Cruz*, 42: 639-642 (M*). (F now known but not yet described).
Lutzomyia wilsoni Forattini, 1973 – "Entomologia Médica, 4º Volume": 357 (M*).
BRAZIL: Amazonas – Parintins, São Paulo de Olivença; *Rondônia* – Guajará Mirim§, Porto Velho§.

Subgenus NYSSOMYIA Barretto

(Figs. 87-90; Map XVII)

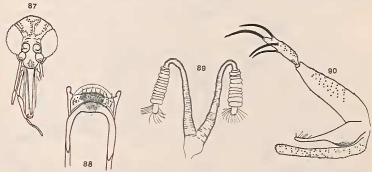
Nyssomyia Barretto, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo*, 4: 98 (subgenus defined with *Phlebotomus intermedius* Lutz & Neiva as the type species).

Trichophoromyia (pro parte) Forattini, 1971 – *Papéis Avulsos de Zoologia,* **24:** 105. (subgenus, of the genus *Psychodopygus* Forattini, defined). Forattini, 1973 – "Entomologia Médica, 4º Volume": 417-448, 454, 456, 468, 471, 480.

Fifth palpal segment short, subequal to the third segment, with the combined lengths of segments 4 and 5 greater than segment 3.

Cibarium of the female with 6-12 horizontal teeth and 2-8 rows of vertical teeth; pigment patch strongly chitinized; cibarial arch complete and reaching almost to the cibarial teeth. Body of the spermatheca with 5-20 well-defined annulations; "head" of the spermatheca large and prominent; walls of the individual spermathecal duct thickened or with small protuberances; common duct long, short or absent.

Dististyle of the male with four well-developed spines, of which only one is terminal; subterminal spine lacking. Basistyle without an inner basal tuft. Paramere simple and digitiform. Aedeagus usually small. Genital pump often large and strongly chitinized. Genital filaments often with modified distal tips.



Figs. 87-90. Subgenus *Nyssomyia. L. intermedia:* female – head (87), cibarium (88), spermathecae and ducts (89); male – genitalia (90).

142. Lutzomyia (Nyssomyia) anduzei (Rozeboom)*

Phlebotomus anduzei Rozeboom, 1942 – *Boletin de Entomologia Venezolana,* **1:** 91-93 (F*), Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication No. 83: 13-14, 21-22 (M*, F*).

Psychodopygus (Trichophoromyia) anduzei Forattini, 1971 – *Papéis Avulsos de Zoologia,* **24:** 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 437-439 (M*, F*, L*).

Phlebotomus intermedius Floch & Abonnenc, 1942 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication No. 30: 3-6, 9-10 (M*, F*).

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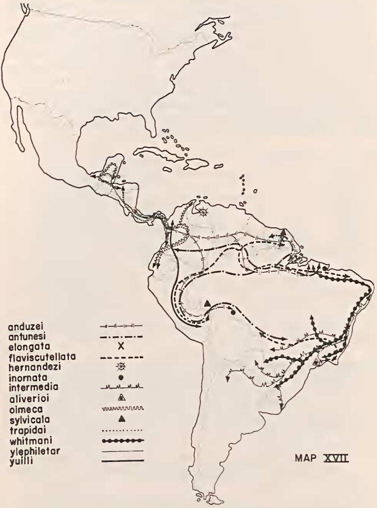
* As listed here, this is a composite species. Means for separating the two species will form the subject of a forthcoming publication of the research group in Belém (Dr. H. Fraiha, *in litt.*).

Subgenus NYSSOMYIA


anduzei
antunesi
elongata
flaviscutellata
hernandezi
inornata
intermedia
aliverioi
oimeca
sylvicala
trapidai
whitmani
ylephiletar
yuilli

MAP XVII

COSTA RICA: San Carlos.

PANAMA: (after Fairchild & Hertig, 1959, and Christensen, 1972 – without locality).

COLOMBIA: *Amazonas* – Letícia; *Boyacá* – Puerto Boyacá; *Caquetá* – Araraquara; *Valle* – Lower Anchicaya Dam.

VENEZUELA: *Bolivar* – Gran Sabana.

SURINAM: Berg en Dal, Moengo.

FRENCH GUYANA: *Approuague* – Balourou, Crique Anguille, Saut Canori, Saut Japigny, Saut Machicou; *Cayenne* – Baduel, Cabassou, Gallion, Matoury, Montabo, Rorota; *Haut Mana* – Souvenir; *Mana* – Corocibo; *Oyapock* – Cafesoca, Maripa, St. Georges, Tampac; *Sinamary* – Adieu Vat, St. Elie.

PERU: *Ayacucho* – La Mar; *Cuzco* – Sabaluio§; *Loreto* – Maynas.

BRAZIL: *Roraima* – Caracaraí§; *Amapá* – Macapá; *Rondônia* – Guajará Mirim§; *Amazonas* – Manaus§; *Pará* – Altamira, Belém, Castanhal§, Irituia, Marabá; *Maranhão* – Cururupu§, Paço do Lumiar§, São Luiz§; *Goiás* – Mineiros (?) (after Coelho, Cunha & Falcão, 1965).

143. **Lutzomyia (Nyssomyia) antunesi (Coutinho)**

Flebotomus antunesi Coutinho, 1939 – *Boletim Biologico*, 4 (N.S.): 131 (M*).

Psychodopygus (*Trichophoromyia*) *antunesi* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 454-456 (M*, F*).

Lutzomyia antunesi Ward & Ready, 1975 – *Journal of Entomology* (Series A), **50**: 128 (E*).

Phlebotomus intermedius var. *acutus* Floch & Abonnenc, 1942 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 30: 3-6, 12 (M*).

Phlebotomus balourouensis Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 81: 1-2, 14 (M*).

Phlebotomus machicouensis Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 81: 8, 18 (F*).

COLOMBIA: *Caquetá* – Florencia, Solano, Tres Esquinas; *Guajira* – Urumira; *Vichada* – Cumariana.

VENEZUELA: *Territorio Federal Amazonas* – Atabapo.

TRINIDAD: Bush Bush Forest.

SURINAM: Berg en Dal.

FRENCH GUYANA: *Approuague* – Balourou, Machicou; *Cayenne* – Matoury.

PERU: *Cuzco* – Assunción; *Huánuco* – Crisnejas, Tingo-Maria§; *Loreto* – Chimbote, Dos de Mayo, Pucallpa§, Quistococha, Serafin Filomeno, Tigrillo, Zungarococha; *Madre de Dios* – Iberia§.

BRAZIL: *Roraima* – Boa Vista§, Caracaraí§; *Amapá* – Macapá; *Amazonas* – Benjamim Constant, Careiro§, Fonte Boa, Itacoatiara, Manacapuru, Manaus§, Parintins, São Paulo de Olivença, Tabatinga, Tefé; *Acre* – Cruzeiro do Sul§;

Feijó, Rio Branco§; *Pará* – Ananindeua, Anhagá, Arariuna, Belém, Benevides, Castanhal§, Igarapé Açú, Irituia, Itaguaré, João Coelho, Monte Alegre, Ourém, Peixe Boi, Santarém, São Domingos do Capim, São Miguel do Guamá, Timboteua; *Rondônia* – Guajará Mirim§, Porto Velho§; *Maranhão* – Cururupu§, Tariaçu§; *Mato Grosso* – Barra do Bugres§, Barra do Garças§, Diamantino§, Mato Grosso§.

144. **Lutzomyia (Nyssomyia) elongata** (Floch & Abonnenc)

Phlebotomus elongatus Floch & Abonnenc, 1945 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication N° 106: 1 (new name for *Phlebotomus longiductus* Floch & Abonnenc, *nec* Parrot).

Psychodopygus (*Trichophoromyia*) *elongatus* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105.

Phlebotomus intermedius Floch & Abonnenc, 1942 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication N° 15: 2 (M).

Phlebotomus intermedius var. *longiductus* Floch, 1942 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication N° 34: 22, 54.

Phlebotomus intermedius longiductus Floch & Abonnenc, 1942 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication N° 30: 3-6, 12-13 (M*).

Phlebotomus longiductus Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication N° 90: 10-11, 22 (M*).

Psychodopygus (*Trichophoromyia*) *whitmani* (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4° Volume": 425.

FRENCH GUYANA: *Haute Mana* – P.I.

145. **Lutzomyia (Nyssomyia) flaviscutellata** (Mangabeira)

Flebotomus flaviscutellatus Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz*, 37: 144-146 (M*).

Psychodopygus (*Trichophoromyia*) *flaviscutellatus* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4° Volume": 428, 430 (M*, F*).

Lutzomyia flaviscutellata Fairchild & Theodor, 1971 – *Journal of Medical Entomology*, 8: 154 (M*, F*). Ward & Ready, 1975 – *Journal of Entomology* (Series A), 50: 128-132 (E*).

Phlebotomus apicalis Floch & Abonnenc, 1943 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication N° 61: 25-28 (M*, F*).

COLOMBIA: *Amazonas* – Letícia.

VENEZUELA: *Territorio Federal Amazonas* – Nyiayobateri (Sierra Parima).

SURINAM: Berg en Dal.

FRENCH GUYANA: *Cayenne* – Baduel, Cayenne, Rorota; *Caux*.

PERU: *Loreto* – Pucallpa§, Serafin Filomeno; *Madre de Dios* – Iberia§.

TRINIDAD: Bush-Bush Forest, Turure Forest, Vega de Oropouche, Aripo-Weller Field.

BRAZIL: *Roraima* – Boa Vista§, Caracaraí§; *Amazonas* – Itacoatiara, Manaus§; *Pará* – Abaetetuba, Belém, Irituia, João Coelho, Marabá, Peixe Boi, Santarém, São Miguel do Guamá, Timboteua; *Maranhão* – Cururupu§, Paço do Lumiar§; *Ceará* – Massapê; *Espírito Santo* – Viana§; *Rio de Janeiro* – Nova Iguaçu§, Petrópolis§; *Minas Gerais* – Paracatu§; *Distrito Federal* – Brasília (Bananal); *Mato Grosso* – Barra do Bugres§.

146. Lutzomyia (Nyssomyia) hernandezi (Ortiz)

Phlebotomus hernandezi Ortiz, 1965 – *Archivos Venezolanos de Medicina Tropical y Parasitologia Medica*, 5: 412-414 (M*).

Psychodopygus (*Trichophoromyia*) *hernandezi* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 468 (M*).

VENEZUELA: *Trujillo* – Panamerican Highway, near Caja Seca.

147. Lutzomyia (Nyssomyia) inornata Martins, Falcão & Silva

Lutzomyia inornata Martins, Falcão & Silva, 1965 – *Revista Brasileira de Biologia*, 25: 14-16 (M*).

Psychodopygus (*Trichophoromyia*) *inornatus* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 471 (M*).

BRAZIL: *Maranhão* – Cururupu§, Paco do Lumiar§, São Luiz§; *Rondônia* – Guajará Mirim§.

148. Lutzomyia (Nyssomyia) intermedia (Lutz & Neiva)

Phlebotomus intermedius Lutz & Neiva, 1912 – *Memórias do Instituto Oswaldo Cruz*, 4: 92 (M, F). Theodor, 1932 – *Bulletin of Entomological Research*, 23: 17-19 (M*, F*). Barretto, 1941 – *Arquivos de Higiene e Saúde Pública*, 6: 81-90 (P*, L*, E*).

Psychodopygus (*Trichophoromyia*) *intermedius* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 417, 419 (M*, F*, P*, L*).

Phlebotomus papatasi Bayma, 1923 – *Anais Paulistas de Medicina e Cirurgia*, 14: 67.

Phlebotomus minutus Bayma, 1923 – *Anais Paulistas de Medicina e Cirurgia*, 14: 67.

Phlebotomus lutzi Manson Bahr, 1925 – "Manson's Tropical Diseases": 144.

Phlebotomus neivai Pinto, 1926 – *Ciência Médica*, 4: 371 (M).

Phlebotomus mazzai Paterson, 1926 – *Boletin del Instituto de Clinica Quirurgica*, 2: 305 (M*, F*).

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BRAZIL: *Paraíba* – Alagoa Grande, Areia; *Pernambuco* – Lagoa dos Gatos, Nazaré, Quipapá, Timbaúba, Vitória de Santo Antão; *Bahia* – Jequié, Poções, Salvador; *Espírito Santo* – Aracruz§, Colatina§, Linhares§, Mimoso do Sul§, Santa Leopoldina§, São João (?), Viana§, Vitória§; *Rio de Janeiro* – Angra dos Reis, Araruama§, Itaboraí§, Itaperuna§, Macaé§, Magé§, Marquês de Valença§, Muriqui§, Nova Iguaçu§, Petrópolis, Rezende, Rio de Janeiro (Jacarepaguá, Laranjeiras), Rio Bonito, Vassouras§; *São Paulo* – Amparo, Andradina, Araraquara, Avaré, Barra Bonita, Birigui, Campinas, Caraguatatuba, Catanduva, Dracena, Franca, Guaratinguetá, Guarujá, Igarapava, Iguape, Itanhaen, Itapecerica da Serra, Itaporange, Jacareí, Junqueirópolis, Leme, Mirasol, Mogi das Cruzes, Mogi Mirim, Monte Aprazível, Novo Horizonte, Pacaembu, Palmeiras, Piedade, Pindamonhangaba, Piracicaba, Pirapozinho, Pompéia, Porto Feliz, Prainha, Presidente Bernardes, Presidente Epitácio, Presidente Prudente, Presidente Venceslau, Rancharia, Ribeirão Preto, Salesópolis, Santo Anastácio, São José do Rio Pardo, São Paulo, São Vicente, Sorocaba, Tieté, Una, Vera Cruz; *Paraná* – Altonia, Cambará, Foz do Iguaçu, Nova Esperança, Paravaí, Peabiru, Santo Antônio§, Santo Inácio; *Santa Catarina* – São Carlos§; *Rio Grande do Sul* – São José do Norte, Torres; *Minas Gerais* – Abaeté§, Alfenas§, Além Paraíba (Benjamin Constant), Aimorés§, Arceburgo, Arinos§, Bambuí§, Barra Longa§, Betim§, Bocaiuva§, Buritizeiro§, Carangola§, Caratinga§, Central de Minas§, Conceição de Ipanema§, Conceição do Rio Verde§, Conselheiro Pena§, Cordisburgo, Corinto§, Coroaci§, Coronel Fabriciano§, Curvelo§, Diamantina§, Esmeraldas§, Estrela d'Alva (Água Viva, formerly Água Limpa), Galiléia§, Governador Valadares§, Iapu§, Ibiaí§, Itambacuri§, Itanhomi§, Januária§, Juiz de Fora§, Lagoa Santa§, Leopoldina§, Manhuaçu§, Mantena§, Mutum§, Paracatu§, Passos§, Pedro Leopoldo§, Perdões, Pocrane§, Porteirinha§, Presidente Olegário§, Riacho dos Machados§, Rio Casca§, São Lourenço§, Sardoá§, Silveirania§, São João do Paraíso§, Taquaraçu§, Tarumirim§, Tupaciguara§, Volta Grande§; *Goiás* – Corumbaíba§, Itumbiara§, Mineiros, Sítio d'Abadia§; *Mato Grosso* – Botaguaçu, Nova Andradina, Ponce, Rio Brilhante, Três Lagoas.

ARGENTINA: *Chaco* – Ingenio Las Palmas, Presidente Roca, Puerto Las Palmas, Rio de Oro; *Corrientes* – Arrocera Raggio, Colonia Pellegrini, Corrientes, San Antonio (Isla Apipé Grande), San Tomé; *Jujuy* – El Palmar, El Talar, Ciudad de Jujuy, La Mendieta, Ledesma, San Pedro (La Esperanza); *Misiones* – Arroyo Piay-Guazú, Arroyo Yacuí, Candelaria, El Dorado, El Soberbio, Garupá, Iguazú, Montecarlo, Paranaí, Puerto Bamberg, Puerto Eva Perón, Puerto Iguazú, Puerto Rico, Villa Nueva, Villa Tacuara; *Tucumán* – Arroyo El Tejar, El Churqui, Finca Santa Barbara, Monte Bello, Parque Aconquija, Tafi Viejo, Tucuman, Yacuchina, Yerba Buena.

PARAGUAY: Caá-Guazú, Chaco, Villa Rica.

149. **Lutzomyia (Nyssomyia) oliverioi (Barretto & Coutinho)**

Phlebotomus oliverioi Barretto & Coutinho, 1941 – *Papéis Avulsos do Departamento de Zoologia, Secretaria da Agricultura, São Paulo*, 1: 233-235 (M*).

Psychodopygus (*Trichophoromyia*) *oliverioi* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105.

Psychodopygus (*Trichophoromyia*) *brasiliensis* (*pro parte*) Forattini, 1973 – "Entomologia médica, 4° Volume": 461.

BRAZIL: *São Paulo* – Osasco.

150. **Lutzomyia (Nyssomyia) olmeca (Vargas & Díaz Nájera)**

Phlebotomus Olmecus Vargas & Díaz Nájera, 1959 – *Revista del Instituto de Salubridad y Enfermedades Tropicales*, 19: 147-149, 150 (M* only; according to Fairchild & Theodor, 1971, F* = *ylephiletor*).

Psychodopygus (*Trichophoromyia*) *olmecus* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4° Volume": 434-435 (M*, F*, P*, L*; P* and L*, probably, = *olmeca bicolor*).

Lutzomyia olmeca Fairchild & Theodor, 1971 – *Journal of Medical Entomology*, 8: 156 (M*, F*).

Phlebotomus (*Psychodopygus*) *apicalis* Lewis & Garnham, 1959 – *Proceedings of the Royal Entomological Society of London* (Series B), 28: 81, 82 (M*, F*).

MEXICO: *Chiapas* – Ocosocautla, Palenque, Santa Maria; *Quintana-Roo* – Rancho La Ceiba, Carrillo Puerto; *Tabasco* – Teapa.

GUATEMALA: *Peten* – Tikal.

BELIZE: Augustine§, Baking Pot§, Big Falls§, Central Farm§, mile 8 & mile 10-11 Chiquibul Road§, Cool Shade, Gallon Jug§, mile 48 Hummingbird Highway§, Mountain Pine Ridge§, Never Delay§, Never Delay Road§, Putchetuk, Rio Grande (8 km north of Punta Gorda)§, Roaring River§, San Ignacio – Bullet Tree Falls road§, San Pedro Colombia§, Sayab Camp, Spanish Lookout§.

HONDURAS: Tela (Lancetilla Valley).

150a. **Lutzomyia (Nyssomyia) olmeca bicolor Fairchild & Theodor**

Lutzomyia olmeca bicolor Fairchild & Theodor, 1971 – *Journal of Medical Entomology*, 8: 157 (M*, F*).

PANAMA: *Chiriqui* – Rio Corutu (Puerto Armuelles); *Colon* – Achiote; *Darien* – Altos de Quia, Rio Tuira; *Panama* – Cerro Jefe (La Victoria), La Jolla Field (near Pacora); *San Blas* – Sasardi; *Canal Zone* – Cruces Trail Forest Reserve, Fort Clayton, Fort San Lorenzo, Loma Borracha (Fort Sherman Reservation), Juan Mina (Chagres River), Mojinga Swamp (Fort Sherman), Rio Pequeni (Madden Lake), San Antonio (Madden Lake), Limbo Field Station.

COLOMBIA: *Boyacá* – Puerto Boyacá; *Chocó* – Alto Curiche, Sautatá, Teresita; *Guajira* – Maicao; *Magdalena* – Santa Marta; *Norte de Santander* – Cúcuta; *Santander* – San Vicente de Chucurí; *Tolima* – Armero; *Valle* – Buenaventura, Lower Achicaya Dam, Palmeras del Pacifico, Rio Raposo.

ECUADOR: *Los Rios* – Quevedo.

151. **Lutzomyia (Nyssomyia) sylvicola** (Floch & Abonnenc)

Phlebotomus sylvicolus Floch & Abonnenc, 1945 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 106: 1 (new name for *Phlebotomus sylvestris* Floch & Abonnenc, *nec* Sinton).

Psychodopygus (*Trichophoromyia*) *sylvicolus* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105.

Phlebotomus sylvestris Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 81: 3-4, 13 (M*).

Psychodopygus (*Trichophoromyia*) *monticolus* (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 474.

FRENCH GUYANA: *Haute Mana* – Saül.

BRAZIL: *Acre* – Feijó§, Rio Branco§.

152. **Lutzomyia (Nyssomyia) trapidoi** (Fairchild & Hertig)

Phlebotomus trapidoi Fairchild & Hertig, 1952 – *Annals of the Entomological Society of America,* 45: 524-526 (M*, F*).

Psychodopygus (*Trichophoromyia*) *trapidoi* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 445-446 (M*, F*, P, L*).

HONDURAS: Tela (Lancetilla Valley).

COSTA RICA: Anita Grande (Roxana), El Molino de Guápides, Jimenez de Guápiles, La Roca de Guápiles, Paso de Marcos (Moravia), Suerre de Guápides, Turrialba.

PANAMA: *Bocas del Toro* – Almirante, Changuena River; *Cocle* – El Valle; *Colon* – Cacique, La Zumbadora, Palenque, Santa Rita, Quebrada Bonita; *Darien* – Altos de Quia (Pinogana District), El Real; *Panama* – Cerro Campana, Cerro Jefe, La Victoria, Madden Field, Pacora, Quebrada Escondida; *Canal Zone* – Gamboa, Gatun, Juan Mina, Limbo Field Station, Loma Borracha, Madden Dam, Mindi Dairy, Mojinga Swamp, Rio del Medio.

COLOMBIA: *Antioquia* – Chigorodó, Mutatá; *Boyacá* – Puerto Boyacá; *Tolima* – Mariquita; *Valle* – Buenaventura, Lower Anchicaya Dam, Rio Raposa.

ECUADOR: *Los Rios* – Quevedo.

153. **Lutzomyia (Nyssomyia) whitmani** (Antunes & Coutinho)

Flebotomus whitmani Antunes & Coutinho, 1939 – *Boletim Biologico,* 4: (N. S.): 448-450 (M*, F*).

Phlebotomus whitmani Barretto, 1941 – *Anais da Faculdade de Medicina da Universidade de São Paulo,* 17: 421, 422, 424, 425, 431 (P, L, E*).

Psychodopygus (*Trichophoromyia*) *whitmani* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105-106. Forattini, 1973 – "Entomologia Médica, 4º Volume": 423-425 (M*, F*).

Phlebotomus intermedius (*pro parte*) Root, 1934 – *American Journal of Hygiene,* 20: 237-240 (Material from Bahia = *whitmani*).? Floch & Abonnenc, 1941

– *Institut de la Guyane française et du Territoire de l'Inini,* Publication Nº 15: 2-4 (M*).

Phlebotomus intermedius acutus (*pro parte*) Floch & Abonnenc, 1942 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 30: 3-6, 12, 14 (M*).

Flebotomus sp. Mangabeira, 1938 – *Memórias do Instituto Oswaldo Cruz,* 33: 355 (F*).

FRENCH GUYANA: *Haute Mana* – P.I., Souvenir.

BRAZIL: *São Paulo* – Andradina, Araçatuba, Araraquara, Assis, Avanhandava, Avaré, Barra Bonita, Birigui; Catanduva, José Bonifácio, Lins, Lussanvira, Marília, Marianópolis, Mirasol, Monte Aprazível, Novo Horizonte, Olímpia, Ourinhos, Palmital, Penápolis, Pereira Barretto, Pindorama, Pirajuí, Pompéia, Presidente Alves, Presidente Prudente, Presidente Wenceslau, Rancharia, Regente Feijó, Santo Anastácio, São Paulo, Tanabi, Tupã, Valparaíso, Vera Cruz; *Pará* – Irituia§; *Maranhão* – Paço do Lumiar§; *Ceará* – Camocim, Fortaleza, Ipu, Massapê, Mocambo, Pacoti, Sobral, Tianguá, Viçosa do Ceará; *Paraíba* – Areia, João Pessoa; *Pernambuco* – Engenho d'Aldeia, Gravatá, Igaraçu, Jaboatão, Maranguape, Moreno, Nazaré, Pau d'Alho, Paulista, Quipapá, Recife, São Lourenço, Timbaúba, Vitória; *Alagoas* – Maragogi, Porto de Pedras; *Bahia* – Ilhéus, Jequié, Poções, Salvador; *Paraná* – Altonia, Cambará, Foz do Iguaçu§, Perianito, Santa Cruz do Monte Castelo; *Minas Gerais* – Alfenas§, Arceburgo, Arcos§, Bambuí§, Barra Longa§, Belo Horizonte§, Belo Vale§, Betim§, Bocaiuva§, Buritizeiro§, Caeté§, Caratinga§, Carmo da Cachoeira§, Central de Minas§, Conselheiro Pena§, Contagem§, Cordisburgo§, Corinto§, Córrego d'Anta§, Cruzeiro da Fortaleza§, Curvelo§, Divinópolis§, Esmeraldas§, Estrela d'Alva§, Estrela do Sul§, Galiléia§, Iapu§, Ibirité§, Itambacuri§, Itanhomi§, Jaboticatubas§, João Pinheiro§, Lagoa Santa§, Luz§, Manhuaçu§, Monjolos§, Monte Carmelo§, Matozinhos§, Nova Lima§, Oliveira§, Paracatu§, Passos§, Patos de Minas§, Peçanha§, Pedro Leopoldo§, Pimenta§, Porteirinha§, Pratápolis§, Riacho dos Machados§, Rio Casca§, Sabará§, Santo Antônio do Amparo§, São João Evangelista§, São Sebastião do Paraíso§, Silveirânia§, Taquaraçu§, Tarumirim§, Tupaciguara§, Uberaba§, Unaí§, Volta Grande§, *Goiás* – Anápolis§, Itumbiara§, Mineiros, Rianópolis§, Sítio d'Abadia§; *Distrito Federal* – Brasília§; *Mato Grosso* – Aquidauana§, Bataguaçu§, Caarapó§, Camapuan§, Diamantino§, Rosário d'Oeste§.

ARGENTINA: *Misiones* – Candelaria, Iguazú, Iguazú-Cué, Puerto Peninsula.

PARAGUAY: Caa-Guazú.

154. Lutzomyia (Nyssomyia) ylephiletor (Fairchild & Hertig)

Phlebotomus ylephiletor Fairchild & Hertig, 1952 – *Annals of the Entomological Society of America,* 45: 520, 521 (M*, F*).

Psychodopygus (*Trichophoromyia*) *ylephiletor* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 442, 444 (M*, F*, L*).

Phlebotomus Olmecus (pro parte) Vargas & Díaz Nájera, 1959 – *Revista del Instituto de Salubridad y Enfermedades Tropicales,* **19**: 147-149, 151 (F* only). (According to Fairchild & Theodor, 1971, the sexes were incorrectly associated by Vargas & Díaz Nájera and F* = *ylephiletor).*

? Flebotomus intermedius Biagi & de Biagi, 1953 – *Medicina – Revista Mexicana,* **33**: 316.

MEXICO: Chiapas – Ocosocautla, Palenque; *Tobasco* – Teapa.

BELIZE: Augustine§, Baking Pot§, Caves Branch§, mile 8 Chiquibul Road§, Esperanza§, Gallon Jug§, Guacamallo§, mile 48 Hummingbird Highway§, Never Delay§, Never Delay road§, Roaring River§, Sayab Camp, Sibun Camp§.

HONDURAS: Tela (Lancetilla Valley).

NICARAGUA: Villa Somoza.

COSTA RICA: Guápiles (El Molino, Jimenez), Moravia (Pacuare, Paso de Marcos), Puntarenas (Esquinas, Palmar), San Carlos (Finca La Josefina, Valle Hermoso), San Juan Miramar (Valle de El General), Suerre, Turrialba.

PANAMA: Bocas del Toro – Almirante, Changuena River, Robalo; *Chiriqui* – Concepción, Palo Santo, Puerto Armuelles, Rio Corutu; *Cocle* – El Valle de Anton; *Panama* – Cerro Campana, Cerro Jefe, Chilbrillo bat cave, La Victoria; *Veraguas* – Santa Fé; *Canal Zone* – Chagres River (Juan Mina), Cocoli, Gamboa, Limbo Field Station, Madden Dam, Mojinga Swamp, Rio Gatun, Rio del Medio.

COLOMBIA: Valle – Rio Raposo.

155. **Lutzomyia (Nyssomyia) yuilli** Young & Porter

Lutzomyia yuilli Young & Porter, 1972 – *Journal of Medical Entomology,* **9**: 524-525 (M*, F*). Ward & Ready, 1975 – *Journal of Entomology* (Series A), **50**: 128, 130 (E*).

? Phlebotomus sp. de Souvenir, Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* publication No. 23: 9, 19 (F*).

? Phlebotomus ylephiletor Forattini, 1960 – *Studia Entomologica,* **3**: 473, 475 (F*).

COLOMBIA: Antioquia – Zaragoza (Rio Anori); ? *Meta* – San Martin.

PERU: Cuzco – Sabaluio§; *Huánuco* – Tingo-Maria§.

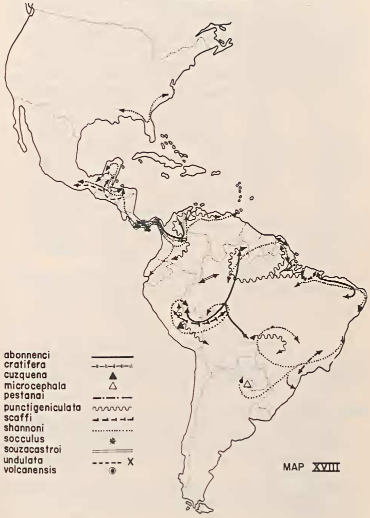
Subgenus PSATHYROMYIA Barretto

(Figs. 91-95; Map XVIII)

Psathyromyia Barretto, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo,* **4**: 98-99 (subgenus defined with *Phlebotomus shannoni* Dyar as the type species).

Trichopygomyia (pro parte) Forattini, 1971 – *Papéis Avulsos de Zoologia,* **24**: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume" 294-295, 303, 314, 316, 317, 318, 320, 323, 325.

Subgenus **PSATHYROMYIA**

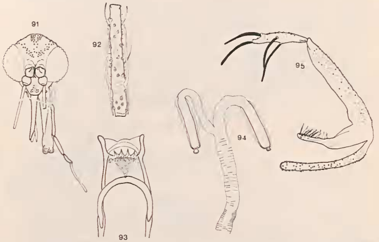

abonnenci
cratifera
cuzquena ▲
microcephala △
pestanai
punctigeniculata
scaffi
shannoni
socculus ✸
souzacastroi
undulata X
volcanensis ◉

MAP XVIII

Fifth palpal segment approximately equal to the combined lengths of segments 3 and 4. Ascoids bigeniculate, the posterior prolongation of the ascoid frequently extending to, or beyond, the base of the segment.

Cibarium of the female with 4-8 horizontal teeth (most usually 4 teeth), one or more rows of vertical teeth, and (sometimes), with lateral teeth; pigment patch triangular and fairly well-defined; cibarial arch complete. Body of the spermatheca cylindrical with smooth or weakly annulated walls; individual spermathecal ducts longer or shorter than the body of the spermatheca; common duct short or long.

Dististyle of the male with four well-developed spines, of which only one is terminal; subterminal seta absent. Basistyle lacking an inner basal tuft of hairs. Paramere simple but sometimes covered with many hairs. Aedeagus usually very small.



Figs. 91-95. Subgenus *Psathyromyia. L. shannoni:* female – head (91), 4th antennal segment (92), cibarium (93), spermathecae and ducts (94); male – genitalia (95).

156. **Lutzomyia (Psathyromyia) abonnenci** (Floch & Chassignet)

Phlebotomus abonnenci Floch & Chassignet, 1947 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication No. 157: 1-3 (M*).

Lutzomyia (Trichopygomyia) shannoni (pro parte) Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 294.

PANAMA: *Colón* – Achiote, Quebrada Bonita; *Darien* – Cerro Quia; *San Blas* – Sasardi; *Canal Zone* – Aguardiene, Madden Forest.

COLOMBIA: Antioquia – Anorí, Chigorodó, Mutatá; *Bolívar* – Simití; *Boyacá*

– Puerto Boyacá; *Caldas* – Victoria; *Caquetá* – Solano; *Norte de Santander* – Cúcuta; *Santander* – San Vicente do Chucurí.

FRENCH GUYANA: Cayenne – Baduel, Cabassou, Crique Anguille, Rorota.

PERU: Madre de Dios – Iberia§, Mancilla§.

BRAZIL: Roraima – Bela Vista§, Caracaraí§; *Acre* – Cruzeiro do Sul§; *Rondônia* – Porto Velho§; *Maranhão* – Cururupu§, Turiaçu; *Ceará* – Acaraú, Cedro, Fortaleza, Independência, Ipu, Itapagé, Jaguaruana, Maranguape, Massapê, Missão Velha, Pacatuba, Russas, Santanópolis, Sobral, Solonópolis, Tianguá, Viçosa do Ceará; *Mato Grosso* – Mato Grosso§.

157. **Lutzomyia (Psathyromyia) cratifera** (Fairchild & Hertig)

Phlebotomus cratifer Fairchild & Hertig, 1961 – *Annals of the Entomological Society of America*, **54**: 242, 244 (M*, ?F*).

Lutzomyia (Trichopygomyia) cratifer Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 303 (M*).

MEXICO: Chiapas – Ocosocautla, Palenque, Santa Maria Cintalapa; *Yucatan* – Carrillo Puerto.

BELIZE: Rio Grande (8 km north of Punta Gorda)§.

HONDURAS: Tela (Lancetilla Valley).

PANAMA: Bocas del Toro – Almirante; *Panama* – Rio Maje (Charco El Toro); *Canal Zone* – Mojinga Swamp, Fort San Lorenzo, Canal Zone Forest Reserve.

COLOMBIA: Boyacá – Puerto Boyacá.

158. **Lutzomyia (Psathyromyia) cuzquena** Martins, Llanos & Silva

Lutzomyia cuzquena Martins, Llanos & Silva, 1975 – *Revista Brasileira de Biologia*, **35**: 650-652 (M*).

PERU: Cuzco – Pilcopata§.

159. **Lutzomyia (Psathyromyia) microcephala** (Barretto & Duret)

Phlebotomus microcephalus Barretto & Duret, 1953 – *Papéis Avulsos do Departamento de Zoologia, Secretaria da Agricultura, São Paulo*, **11**: 341-343 (M*).

Lutzomyia (Trichopygomyia) microcephala Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 102.

Phlebotomus shannoni Bejarano & Duret, 1950 – *Revista de la Sanidad Militar Argentina*, **49**: 330 (M).

Lutzomyia (Trichopygomyia) shannoni (pro parte) Forattini, 1973 – "Entomologia Médica, 4º Volume": 294.

ARGENTINA: Chaco – Presidente Roca.

160. **Lutzomyia (Psathyromyia) pestanai** (Barretto & Coutinho)

Phlebotomus pestanai Barretto & Coutinho, 1941 – *Papéis Avulsos do Departamento de Zoologia da Secretaria da Agricultura, São Paulo*, **1**: 144-146 (M*).

Barretto, 1941 – *Anais da Faculdade de Medicina da Universidade de São Paulo,* 17: 407-412, Plates II, XXXVII-XLXLI, LI (P*, L*, E*). Coutinho & Barretto, 1941 – *Revista de Biologia e Higiene,* 11: 75-76, Plate I (F*).

Lutzomyia (Trichopygomyia) pestanai Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 314, 316 (M*, F*, P*, L*).

BRAZIL: São Paulo – Presidente Venceslau, Salesópolis, Santo Anastácio, São Paulo; *Minas Gerais* – Belo Horizonte§, Belo Vale§, Caeté§, Caratinga§, Oliveira§, Sabará§.

161. **Lutzomyia (Psathyromyia) punctigeniculata** (Floch & Abonnenc)

Phlebotomus punctigeniculatus Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication No. 81: 5-8, 16 (M*, F*).

Lutzomyia (Trichopygomyia) punctigeniculata Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 317 (M*, F*).

Flebotomus christophersoni Damasceno & Causey, 1944 – *Memórias do Instituto Oswaldo Cruz,* 41: 347-349, Plates IV, V (M*).

COLOMBIA: Bolivar – Mompós; *Boyacá* – Puerto Boyacá; *Caldas* – Victoria; *Caquetá* – Solano; *Guajira* – Maicao; *Huila* – Neiva; *Magdalena* – Pivijay, Rio Don Diego; *Tolima* – Melgar.

VENEZUELA: Aragua – Choroní; *Lara* – Duaca; *Miranda* – Guatopo; *Zulia* – Rio Negro, Zipayare.

FRENCH GUYANA: Cayenne – Baduel.

PERU: Cuzco – Calca (La Quebrada); *Loreto* – Pucallpa§.

BRAZIL: Roraima – Boa Vista§; *Amazonas* – Careiro§, Manaus§, Parintins; *Acre* – Cruzeiro do Sul§; *Pará* – Belém, Monte Alegre, Santarém; *Goiás* – Amaro Leite§, Itumbiara§; *Mato Grosso* – Barra do Garças§, Camapuan§.

BOLIVIA: La Paz – Los Yungas (Teoponte, Tejlewi).

162. **Lutzomyia (Psathyromyia) scaffi** (Damasceno & Arouck)

Flebotomus scaffi Damasceno & Arouck, 1956 – Mimeograph of a a paper presented at *XIII Congresso Brasileiro de Higiene:* 6-8, Plate II (M*).

Lutzomyia (Trichopygomyia) scaffi Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 318, 320 (M*).

Lutzomoyia scaffi Martins, Llanos & Silva, 1976 – *Revista Brasileira de Biologia,* 36: 498-500 (M*).

PERU: Loreto – Pucallpa§; *Madre de Dios* – Iberia§.

BRAZIL: Rondônia – Guajará Mirim§; *Pará* – Belém§, Capim, Irituia§, *Maranhão* – Cururupu§.

163. Lutzomyia (Psathyromyia) shannoni (Dyar)

Phlebotomus (Neophlebotomus) shannoni Dyar, 1929 – *American Journal of Hygiene*, **10**: 121, 124 (M*).

Flebotomus shannoni Barretto, 1946 – *Anais da Faculdade de Medicina da Universidade de São Paulo*, **22**: 11-15, 25, 27 (M*, F*).

Phlebotomus shannoni Fairchild & Hertig, 1950 – *Annals of the Entomological Society of America*, **43**: 524, 525, 529, 530 (M*,F*).

Lutzomyia (Trichopygomyia) shannoni Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 294-295 (M*, F*, P*, L*).

Flebotomus limai Fonseca, 1935 – *Memórias do Instituto Butantan*, **10**: 61 (F*).

Phlebotomus limai Barretto & Coutinho, 1941 – *Arquivos de Higiene e Saúde Pública*, **6**: 34-35, Plate I (M*). Barretto, 1941 – *Anais da Faculdade de Medicina da Universidade de São Paulo*, **17**: 393-398, Plates I, XXV-XXVIII, LII (P*, L*, E*).

Phlebotomus bigeniculatus Floch & Abonnenc, 1941 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication No. 28: 3-7 (M*, F*).

Phlebotomus pifanoi Ortiz, 1972 – *Revista del Instituto Nacional de Higiene*, **5**: 21-22, 27 (M*). **(New synonymy).**

UNITED STATES: Alabama – Annie Pond (Lauderdale County), Selma (Dallas County); *Georgia* (after Fairchild & Hertig, 1950); *Florida* – Gainesville (Alachua County), Palm Valley (Saint John County); *Mississipi* – Clinto (Hinds County); *North Carolina* – Rockingham (Rockingham County).

MEXICO: Campeche – Escárcega; *Chiapas* – Ocosocautla, Palenque, Santa Maria; *Guerrero* – Cocula; *Puebla* – El Ajenjibre; *Quintana Roo* – Carrillo Puerto, Carretera Petu-Chetumal, Carretera a Puerto Juarez, Rancho La Ceiba.

BELIZE: Augustine§, Baking Pot§, Belmopan§, Benque Viejo – Arenal road§, Big Falls§, Branch Mouth, Caves Branch§, Central Farm§, mile 8 & 10-11 Chiquibul Road§, Cool Shade§, Eseranza§, Gallon Jug§, Guacamallo§, mile 48 Hummingbird Highway§, Iguana Creek§, Millionario§, Mountain Pine Ridge§, Never Delay§, Never Delay road§, Rio Grande (8 km north of Punta Gorda)§, Roaring River§, San Antonio (Cayo District)§, San Antonio (Toledo District)§, San Ignacio – Bullet Tree Falls road§, San Pedro Colombia§, Sayab Camp, Sibun Camp§, Spanish Lookout§, Water Hole.

HONDURAS: Lancetilla Valley (near Tela).

NICARAGUA: Casa Colorada (near Managua), Villa Somoza.

COSTA RICA: Alajuela, Boca del Barranca, El Molino de Guápiles, Esquinas, Finca La Josefina, Finca Socorrito, Jiménez de Guápiles, Lagartos, La Roca de Guápiles, Pacuare, Paso de Marcos, San Juan de Miramar, Suerre de Guápiles, Turrialba, Valle Harmoso.

PANAMA: Bocas del Toro – Almirante; *Colon* – Quebrada Bonita; *Darién* – Altos de Quia (Pinogana District); *Panama* – Santa Rita; *Canal Zone* – Cano Saddle (Gatun Lake), Gamboa, Juan Mina.

COLOMBIA: *Antioquia* – Chigorodó, Mutatá; *Bolivar* – Mompós, Simití; *Boyacá* – Puerto Boyacá; *Caldas* – Victoria; *Caquetá* – Florencia; *Cundinamarca* – Puerto Salgar, Tocaima; *Guajira* – Maicao; *Magdalena* – Mamatoco, Minca, Pivijay, Santa Marta; *Meta* – Acacias, Guamal, Sabanas de San Martin; *Norte de Santander* – Cúcuta; *Santander* – Lebrija, San Vicente de Chucurí; *Tolima* – Armero; *Valle* – El Topacio, Pichinde.

VENEZUELA: *Aragua* – Rancho Grande; *Distrito Federal* – Caracas (Jardim Botanico); *Falcón* – Mene de Mauroa; *Miranda* – Guatopo; *Yaracuy* – San Felipe; *Zulia* – Zipayare; *Territorio Federal Amazonas* – Nyiayobateri (Serra Parima).

TRINIDAD: Bush-Bush Forest.

SURINAM: Berg en Dal, Moengo.

FRENCH GUYANA: *Approuague* – Balourou, Saut Conori, Saut Machicou; *Cayenne* – Crique Anguille; *Haute Mana* – Souvenir; *Iracoubo* – Crique Blanche; *Oyapock* – Maripa, Saint Georges; *Sinnamary* – Saut Tigre.

ECUADOR: *Guayas* – Manglaralto; *Los Rios* – Quevedo; *Manabí* – Calceta.

PERU: *Cuzco* – Echarate§, Pilcopata§; *Huánuco* – Cachicoto§, Crisnejas; *Loreto* – Pucallpa§; *Madre de Dios* – Iberia§, Mancilla§, Puerto Maldonado, Salvación§, Tambopata.

BRAZIL: *Roraima* – Boa Vista§, Caracaraí§; *Amapá* – Macapá; *Amazonas* – Careiro§, Manaus§; *Acre* – Cruzeiro do Sul§, Feijó§, Rio Branco§; *Pará* – Belém, Castanhal§, Irituia§, Marabá, Oriximina§; *Rondônia* – Guajará Mirim§, Porto Velho§; *Maranhão* – Coroatá§, Cururupu§, Turiaçu§, Viana§, *Ceará* – Pacatuba, Pacoti, Russas, Santanople, São Benedito, São Bernardo, Tauá, Tianguá; *Paraíba* – João Pessoa; *Pernambuco* – Goiana§, Recife; *Bahia* – Canavieiras§, Gandu§, Itabuna§, Itagimirim§, Itapebi§, Taperoá§, Una§, Valença§; *Espírito Santo* – Colatina§, Conceição da Barra§, Esperantinópolis, Linhares§, São João (?), São Mateus§; *Rio de Janeiro* – Nova Iguaçu§, Petrópolis§, Rezende§, Rio de Janeiro (Jacarepaguá)§; *São Paulo* – Andradina, Araçatuba, Birigui, Campinas, Itaporanga, Junqueirópolis, Martinópolis, Mogi das Cruzes, Olímpia, Pacaembu, Piedade, Pompéia, Presidente Alves, Presidente Prudente, Presidente Venceslau, Regente Feijó, Salesópolis, Santo Amaro, Santo Anastácio, São José dos Campos, São José do Rio Pardo, São Paulo, Valparaíso, Vera Cruz; *Paraná* – Altonia, Capanema§, Cascavel§, Foz do Iguaçu§, Guaraniaçu, Imbituva§, Laranjeiras do Sul§, Nova Esperança, Palmeiras§, Paranavaí§, Salto do Itararé (?), Santo Antônio§, Santa Cruz do Monte Castelo, São José dos Pinhais§; *Santa Catarina* – Catanduvas§, Chapeco§, Dionísio Cerqueira§, Florianópolis§, Joaçaba§, Palmitos§, Papanduva§, Santa Cecília§, São Carlos§, São Miguel d'Oeste§, Xanxerê§; *Minas Gerais* – Alfenas§, Arceburgo, Arinos§, Belo Horizonte§, Buritizeiro§, Contagem§, Corinto§, Itabirito§, Matozinhos§, Nova Lima§, Paracatu§, Presidente Olegário§, Sabará§, Salto da Divisa§, Santa Bárbara§, Santana do Riacho§, São Sebastião do Rio Preto§, Tupaciguara§, Unaí§, Várzea da Palma§, *Goiás* – Amaro Leite§, Anápolis§, Arraias§, Corumbaíba§, Itapaci§, Itumbiara§, Maurilândia§, Mineiros, Paraúna§, Sítio d'Abadia§; *Distrito Federal* – Brasília§; *Mato Grosso* – Barra do Bugres§, Barra do Garças§, Camapuan§, Campo Grande§, Caarapó§, Diamantino§, Maracaju§, Mato Grosso, Nova Andradina, Rosário d'Oeste§.

BOLIVIA: *La Paz* – Los Yungas (Misquimayo).

PARAGUAY: (after Fairchild & Hertig, 1950).

ARGENTINA: *Chaco* – Presidente Rosa; *Formosa* – San Hilário; *Misiones* – Deseado, Eldorado, Iguazú-Cué, Las Delicias.

164. **Lutzomyia (Psathyromyia) socculus** (Fairchild & Hertig)

Phlebotomus socculus Fairchild & Hertig, 1961 – *Annals of the Entomological Society of America*, 54: 240 (M*).

Lutzomyia (*Trichopygomyia*) *soccula* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 320 (M*).

PANAMA: *Bocas del Toro* – Almirante (Finca Barranco, Finca dos Canos, Almirante Yellow Fever Station).

165. **Lutzomyia (Psathyromyia) souzacastroi** (Damasceno & Causey)

Flebotomus souzacastroi Damasceno & Causey, 1944 – *Memórias do Instituto Oswaldo Cruz*, 41: 344-346, Plates III, V (M*).

Lutzomyia (*Trichopygomyia*) *souzacastroi* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 320 (M*).

BRAZIL: *Amazonas* – Fonte Boa, São Paulo de Olivença.

166. **Lutzomyia (Psathyromyia) undulata** (Fairchild & Hertig)

Phlebotomus undulatus Fairchild & Hertig, 1950 – *Annals of the Entomological Society of America*, 43: 524, 527, 532 (M*). (F indistinguishable from F of *cratifera*).

Lutzomyia (*Trichopygomyia*) *undulata* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 323, 325 (M*, F*).

Phlebotomus Humboldti Vargas & Díaz Nájera, 1959 – *Revista del Instituto de Salubridad y Enfermedades Tropicales*, 19: 143-144, 155 (M*).

MEXICO: *Chiapas* – Ocosocautla; *Oaxaca* – Santa Maria Huatulco (Pochutla).

GUATEMALA: Esquintla.

BELIZE: Esperanza§.

HONDURAS: Tela (Lancetilla Valley).

EL SALVADOR: *Cabañas* – Carretera Panamericana Km 81, Rio Lempa.

PANAMA: (after Fairchild & Hertig, 1959).

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

167. Lutzomyia (Psathyromyia) volcanensis (Fairchild & Hertig)

Phlebotomus volcanensis Fairchild & Hertig, 1950 – *Annals of the Entomological Society of America*, 43: 524, 528, 533 (M*). Fairchild & Hertig, 1961 – *Annals of the Entomological Society of America*, 54: 246 (F*).

Lutzomyia (*Trichopygomyia*) *volcanensis* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 325 (M*, F*).

PANAMA: *Chiriquí* – Cerro Punta (Volcán de Chiriquí), Rio Candela.

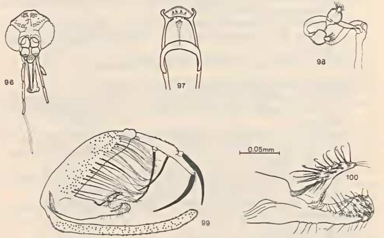
Subgenus TRICHOPYGOMYIA Barretto

(Figs. 96-100; Map XIX)

Trichopygomyia Barretto, 1962 – *Revista de Medicina Tropical de São Paulo*, 4: 98 (subgenus defined with *Flebotomus longispinus* Mangabeira as the type species). Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 102 (*pro parte*). Forattini, 1973 – "Entomologia Médica, 4º Volume": 303-305, 309, 318, 320-321, 321-323, 325.

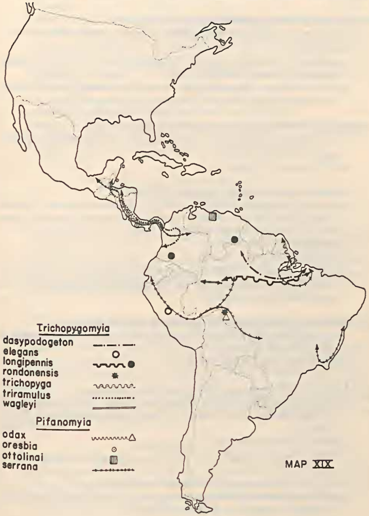
Fifth palpal segment long, greater than the combined lengths of segments 3 and 4.

Cibarium of the female with four horizontal teeth and a few small vertical teeth; pigment patch weakly marked; cibarial arch complete or incomplete. Body of the spermatheca pear-shaped, finely striated, and with a prominent "head"; individual spermathecal duct long; common duct long, short or absent.



Figs. 96-100. Subgenus *Trichopygomyia*. *L. longispina*: female – head (96), cibarium (97); male – genitalia (99), distal part of the paramere (100). *L. triramulus*: female – spermathecae and ducts (98).

Subgenera TRICHOPYGOMYIA & PIFANOMYIA


Trichopygomyia
dasypodogeton
elegans
longipennis
rondonensis
trichopyga
triramulus
wagleyi
Pifanomyia
odax
oresbia
ottolinai
serrana

MAP XIX

Dististyle of the male with four well-developed spines (inserted at different levels) and a subterminal seta. Basistyle lacking an inner basal tuft but with a row of long hairs along the ventral margin. Paramere bifurcate, one species also having a dorsal arm. Aedeagus large.

168. **Lutzomyia (Trichopygomyia) dasipodogeton (Castro)**
Flebotomus dasipodogeton Castro, 1939 – *Jornal do Comércio* (Rio de Janeiro), **112**: 4 (M).
Lutzomyia (*Trichopygomyia*) *dasipodogeton* Forattini, 1973 – "Entomologia Médica, 4º Volume": 303-305 (M*).
BRAZIL: *Roraima* – Caracaraí§; *Pará* – Ananindeua, Anhagá, Belém, João Coelho, Marabá, Ourém, Peixe Boi, Santarém, São Domingos do Capim.

169. **Lutzomyia (Trichopygomyia) elegans Martins, Llanos & Silva**
Lutzomyia elegans Martins, Llanos & Silva, 1976 – *Revista Brasileira de Biologia*, **36**: 488-491 (M*, F*).
PERU: *Huánuco* – Cachicoto§.

170. **Lutzomyia (Trichopygomyia) longispinus (Mangabeira)**
Flebotomus longispinus Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz*, **37**: 186-189 (M*). Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz*, **37**: 251-257, Plates I-III, V (F*, L*, E*).
COLOMBIA: *Caquetá* – Florencia.
VENEZUELA: *Bolivar* – Gran Sabana.
BRAZIL: *Amazonas* – Coari, Manacapuru, Parintins; *Pará* – Anhagá, Belém, João Coelho, Óbidos, Santarém, São Domingos do Capim; *Pernambuco* – Igaraçu; *Minas Gerais* – Marlieria§.

171. **Lutzomyia (Trichopygomyia) rondoniensis Martins, Falcão & Silva**
Lutzomyia rondoniensis Martins, Falcão & Silva, 1965 – *Revista Brasileira de Biologia*, **25**: 12-14 (M*).
BRAZIL: *Rondônia* – Guajará Mirim§.

172. **Lutzomyia (Trichopygomyia) trichopyga (Floch & Abonnenc)**
Phlebotomus trichopygus Floch & Abonnenc, 1945 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 106: 2-4, 11-12 (M*, F*).
FRENCH GUYANA: *Cayenne* – Crique Anguille.
BRAZIL: *Amapá* – Macapá.

173. **Lutzomyia (Trichopygomyia) triramulus (Fairchild & Hertig)**
Phlebotomus triramulus Fairchild & Hertig, 1952 – *Annals of the Entomological Society of America*, **45**: 517, 519, 525 (M*, F*).

Lutzomyia (*Trichopygomyia*) *triramula* Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 321-323 (M*, F*, P*L*).

BELIZE: mile 8 & mile 10-11 Chiquibul Road§, Mountain Pine Ridge§, Roaring River§.

PANAMA: *Colon* – Cacique, Cerro Santa Rita, Palenque, Rio del Medio; *Darien* – Altos de Quia (Pinogana District); *Panama* – Campo Chorrera, Cerro Campana, La Victoria (Cerro Jefe); *Canal Zone* – Barro Colorado Island, Limbo Field Station, Mojimga Swamp.

COLOMBIA: *Santander* – San Vicente de Chucurí; *Valle* – Buenaventura, Rio Raposo, Taparalito.

174. **Lutzomyia (Trichopygomyia) wagleyi** (Causey & Damasceno)

Flebotomus wagleyi Causey & Damasceno, 1945 – *Memórias do Instituto Oswaldo Cruz*, 42: 25, 26-28 (M*).

BRAZIL: *Amazonas* – Coari, São Paulo de Olivença.

Subgenus PIFANOMYIA Ortiz & Scorza

(Figs. 101-104; Map XIX)

Pifanomyia Ortiz & Scorza, 1963 – *Acta Biologica Venezuelica*, **3**: 344 (subgenus, of the genus *Phlebotomus*, defined with *Flebotomus serranus* Damasceno & Arouck as the type species).

Coromyia (*pro parte*) Barretto, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo*, 4: 97 (only species of Barretto's group *serranus*).

Lutzomyia (subgenus *pro parte*) Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 99, 100. Forattini, 1973 – "Entomologia Médica, 4º Volume": 261, 263, 265, 269.

Fifth palpal segment long, greater than the combined lengths of segments 3 and 4, sometimes approaching the combined lengths of segments 2, 3 and 4.

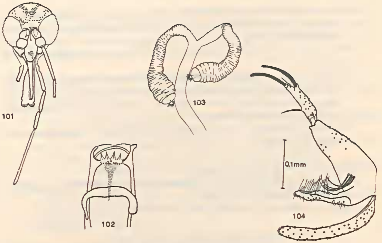
Cibarium of the female with four horizontal teeth and one or two rows of vertical teeth; pigment patch in the form of an elongated narrow triangle; cibarial arch complete. Body of the spermatheca carrot-shaped, weakly annulated, with a globose distal segment.

Dististyle of the male with two well-developed spines, one or two reduced (hair-like) spines and a subterminal seta. Basistyle with an inner basal tuft of 3-7 large or hair-like setae.

175. **Lutzomyia (Pifanomyia) odax** (Fairchild & Hertig)

Phlebotomus odax Fairchild & Hertig, 1961 – *Annals of the Entomological Society of America*, 54: 238-239 (M*, F*).

Lutzomyia (*Lutzomyia*) *odax* Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 261 (M*, F*).



Figs. 101-104. Subgenus *Pifanomyia. L. serrana*: female – head (101), cibarium (102), spermathecae and ducts (103); male – genitalia (104).

Lutzomyia dubia Martins, Falcão & Silva, 1965 – *Revista Brasileira de Biologia*, 25: 4-6 (M*).
HONDURAS: Tela (Lancetilla Valley).
NICARAGUA: Villa Somoza.
PANAMA: *Bocas del Toro* – Almirante; *Darien* – Altos de Quia (Pinogana District).
BRAZIL: *Rondônia* – Guajará Mirim§.

176. **Lutzomyia (Pifanomyia) oresbia (Fairchild & Hertig)**
Phlebotomus oresbius Fairchild & Hertig, 1961 – *Annals of the Entomological Society of America*, 54: 240 (M*, F*).
Lutzomyia (*Lutzomyia*) *oresbia* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 263 (M*, F*).
PANAMA: *Chiriquí* – Lagunas del Volcan, Rio Candela, Santa Clara.

177. **Lutzomyia (Pifanomyia) ottolinai (Ortiz & Scorza)**
Phlebotomus (*Pifanomyia*) *ottolinai* Ortiz & Scorza, 1963 – *Acta Biologica Venezuelica*, 3 : 345-346, 347 (M*, F*).
Lutzomyia (*Lutzomyia*) *ottolinai* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 265 (M).
VENEZUELA: *Aragua* – Rancho Grande.

178. **Lutzomyia (Pifanomyia) serrana** (Damasceno & Arouck)

Flebotomus serranus Damasceno & Arouck, 1949 – *Revista do Serviço Especial de Saúde Pública*, 2: 843-845, 847, 848 (M*).

Phlebotomus serranus Fairchild & Hertig, 1961 – *Annals of the Entomological Society of America*, 54: 237-239 (M*, F*).

Lutzomyia (Lutzomyia) serrana Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 100. Forattini, 1973 – "Entomologia Médica, 4º Volume": 269 (M*, F*, P , L*).

Phlebotomus guayasi Rodriguez, 1956 – *Revista Ecuatoriana de Higiene y Medicina Tropical*, 13: 76-78, 81, 83 (M*, F*).

MEXICO: Chiapas – Palenque.

HONDURAS: Tela.

NICARAGUA: Villa Somoza.

COSTA RICA: Lagartos – Carretera Panamerica, Suerre de Guápiles, Turrialba.

PANAMA: (after Fairchild & Hertig, 1961*a*; reference to 16 localities in Panama but without place names).

COLOMBIA: Bolivar – Simití; *Boyacá* – Puerto Boyacá; *Caldas* – Victoria; *Cundinamarca* – Puerto Salgar; *Santander* – San Vicente de Chucurí.

ECUADOR: Guayas – Estero Claro.

PERU: Cuzco – Quillabamba§, Torreblanca; *Huánuco* – Tingo-Maria§; *Loreto* – Pucallpa§; *Piura* – Ayabaca, Morropón; *San Martin* – Moyobamba.

BRAZIL: Amapá – Macapá; *Amazonas* – Manaus§; *Acre* – Cruzeiro do Sul§, Feijó§, Rio Branco§; *Rondônia* – Guajará Mirim§, Porto Velho§; *Pará* – Irituia§, Vizeu; *Maranhão* – Turiaçu§; *Bahia* – Gandu§, Ilhéus§, Valença§; *Rio de Janeiro* – Nova Iguaçu§; *Minas Gerais* – Buritizeiro§, Caratinga§, Itambacuri§, Peçanha§; *Mato Grosso* – Barra do Bugres§, Mato Grosso§.

BOLIVIA: Pando – Villa Bella§.

Subgenus BARRETTOMYIA Martins & Silva

(Figs. 105-108; Map XX)

Barrettomyia Martins & Silva, 1968 – *Boletim do Museu de História Natural da Universidade Federal de Minas Gerais*, Zoologia No. 3: 3 (subgenus defined with *Flebotomus tupynambai* Mangabeira as the type species).

Barrettomyia (*sic*) Martins & Silva, 1965 – *Ciência e Cultura*, 17: 235 (typographical error in an abstract of a work presented at a scientific meeting). Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 102.

Castromyia (pro parte) Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz*, 37: 185 (subgenus, of the genus *Phlebotomus*, defined with *Phlebotomus castroi* Barretto & Coutinho as the type species). Barretto, Martins & Pellegrino, 1956 – *Folia Clinica et Biologica*, 26: 49 (subgenus rejected as a valid concept). Theodor, 1965 – *Journal of Medical Entomology*, 2: 191 (subgenus, of the genus *Lutzomyia*, defined with reservations about the relationship of the type species).

Fifth palpal segment very long, greater than the combined lengths of segments 3 and 4.

Cibarium of the female with four horizontal teeth and a row of small vertical teeth; pigment patch large but poorly defined; cibarial arch complete. Body of the spermatheca globose with thick but smooth walls; "head" of the spermatheca well defined, arising from a cone-shaped depression; individual spermathecal duct dilated and bladder-shaped; common duct short.

Dististyle of the male with four well-developed spines and a subterminal seta, but one species has a variable (4-8) number of well-developed spines. Basistyle with an inner basal tuft of hairs arising from one or more well-developed tubercles. Dorsal surface of paramere with a prominent spiniform hair or with a row of such hairs; ventral surface of the paramere with a well-defined, tooth-like process. Tips of genital filaments dilated and spoon-shaped. Lateral lobe longer than the basistyle.

179. **Lutzomyia (Barrettomyia) bahiensis** (Mangabeira & Sherlock)

Phlebotomus bahiensis Mangabeira & Sherlock, 1961 – *Revista Brasileira de Biologia,* **21**: 266-268 (M*). Sherlock & Carneiro, 1962 – *Memórias do Instituto Oswaldo Cruz,* **60**: 423-426 (F*). Sherlock, 1963 – *Revista Brasileira de Biologia,* **23**: 50-52 (M*). Carneiro & Sherlock, 1964 – *Revista Brasileira de Malariologia e Doenças Tropicais,* **16**: 315, 327 (P*).

BRAZIL: Bahia – Alagoinhas, Conceição de Almeida, Feira de Santana, Inhambupe, Jequié, Salvador, Uruçuca, Usina Aratu.

180. **Lutzomyia (Barrettomyia) callipyga** Martins & Silva

Lutzomyia callipygus Martins & Silva, 1965 – *Revista Brasileira de Biologia,* **25**: 269-272 (M*, F*).

BRAZIL: Minas Gerais – Peçanha§, São João Evangelista§.

181. **Lutzomyia (Barrettomyia) costalimai** (Mangabeira)

Flebotomus (Castromyia) costalimai Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* **37**: 177-181 (M*).

Lutzomyia (Barrettomyia) costalimai Martins & Silva, 1968 – *Boletim do Museu de História Natural da Universidade Federal de Minas Gerais,* Zoologia No. 3: 10-13, Plate III (M in key, F*).

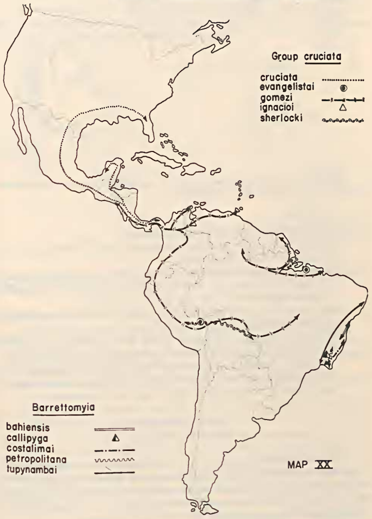
BRAZIL: Bahia – Lapa§; *Espírito Santo* – Aracruz§, Linhares§, Santa Tereza§; *Rio de Janeiro* – Campos, Mangaratiba§; *Minas Gerais* – Itanhomi§, Volta Grande§.

182. **Lutzomyia (Barrettomyia) petropolitana** Martins & Silva

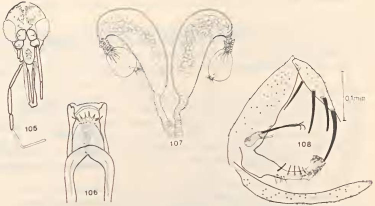
Lutzomyia (Barrettomyia) petropolitana Martins & Silva, 1968 – *Boletim do Museu de História Natural da Universidade Federal de Minas Gerais,* Zoologia No. 3: 6-9, Plates I, II (M*, F*).

BRAZIL: Rio de Janeiro – Petrópolis§.

Subgenus **BARRETTOMYIA** & the **cruciata** group


Group cruciata
cruciata
evangelistai
gomezi
ignacioi
sherlocki
Barrettomyia
bahiensis
callipyga
costalimai
petropolitana
tupynambai

MAP XX



Figs. 105-108. Subgenus *Barrettomyia. L. tupynambai:* female – head (105), cibarium (106), spermathecae and ducts (107); male – genitalia (108).

183. **Lutzomyia (Barrettomyia) tupynambai** (Mangabeira)

Flebotomus (Castromyia) tupynambai Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* 37: 181-185 (M*).

Phlebotomus tupynambai Sherlock & Carneiro, 1962 – *Memórias do Instituto Oswaldo Cruz,* **60**: 425 (F*). Carneiro & Sherlock, 1964 – *Revista Brasileira de Malariologia e Doenças Tropicais,* **16**: 314, 315, 325 (P*).

Lutzomyia (Barrettomyia) tupynambai Forattini, 1973 – "Entomologia Médica, 4º Volume": 347-348 (M*, F*, P*, L*).

BRAZIL: Pernambuco – Goiana§, Rio Tinto§; *Bahia* – Alagoinhas, Cachoeira, Conceição do Almeida, Entre Rios, Feira de Santana, Jequié, Salvador; *Espírito Santo* – Viana§, Vitória§; *Rio de Janeiro* – Campos, Mangaratiba§, Petrópolis§; *Minas Gerais* – Belo Horizonte§, Caratinga§, Diamantina§, Itambacuri§, Jacinto§, Morro do Pilar§, Pedro Leopoldo§, Rio Casca§.

Group CRUCIATA

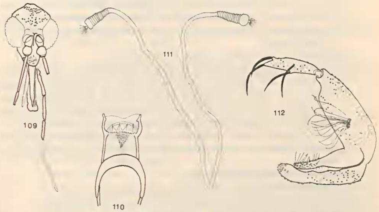
(Figs. 109-112; Map XX)

Fifth palpal segment long, greater than the combined lengths of segments 3 and 4.

Cibarium of the female with four horizontal teeth and one or two rows of vertical teeth; pigment patch usually well defined; cibarial arch complete. Body of the spermatheca segmented, with a large, capsular terminal segment and a well-defined "head"; individual spermathecal duct long and narrow; common duct short.

Dististyle of the male with four well-developed spines, subterminal seta lacking. Basistyle with an inner basal tuft of hair-like setae arising from small, well chitinized tubercles. Paramere simple; lateral lobe unarmed.

Young & Fairchild (1974) placed these species in the subgenus *Lutzomyia*. The group characteristics are, however, so distinctive to warrant separation from this subgenus. The group is now so well known, and its characteristics so well defined, that we think the group *cruciata* should be recognized as a subgenus.



Figs. 109-112. Group *cruciata*. *L. gomezi:* female – head (109), cibarium (110), spermathecae and ducts (111); male – genitalia (112).

184. Lutzomyia cruciata (Coquillett)

Flebotomus cruciatus Coquillett, 1907 – *Entomological News*, **18**: 102 (F).

Phlebotomus cruciatus Fairchild & Hertig, 1948 – *Annals of the Entomological Society of America*, **41**: 247-253 (F*). Fairchild & Hertig, 1951 – *Annals of the Entomological Society of America*, **46**: 377-378 (M*, F*).

Lutzomyia cruciata Disney, 1968 – *Journal of Medical Entomology*, **5**: 267-268 (synonymy).

Phlebotomus (Brumptomyia) diabolicus Hall, 1936 – *Proceedings of the Entomological Society of Washington*, 38: 28-29 (M*, F).

Phlebotomus diabolicus Addis, 1945 – *Journal of Parasitology*, **31**: 125-127 (M*, F*). Fairchild & Hertig, 1953 – *Annals of the Entomological Society of America, 46:* 380-382 (M*, F*).

Lutzomyia (Lutzomyia) diabolica Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 252, 254 (M , F*).

UNITED STATES: Florida – Gainesville (Alachua County); *Texas* – Camp Bullis

(Bexar County), Del Rio (Valverde County), Fredericksburg (Gillespie County), Lake Buchanan (Llano County), Sonora (Sutton County), Uvalde (Uvalde County).

MEXICO: Campeche – Escárcega, Lechugal, Matamoros; *Chiapas* – Aldea Las Cabanas, Cintalapa, Finca El Vergel, Finca La Esperanza, Hacienda La Nueva, Palenque, Santa Maria, Tapachula; *Guerrero* – Cocula, Huitzuco; *Hidalgo* – Santa Ana; *Michoacan* – Nocupétaro; *Morelos* – Cañon de Lobos; *Nuevo Leon* – Colla de Caballo; *Puebla* – El Ajenjibre; *Quintana Roo* – Carrillo Puerto, Rancho La Ceiba, Carretera Peto-Chetumal, Carretera Puerto Juarez; *San Luis Potosi* – Tamazunchale; *Tabasco* – Arroyo Expangale; *Tamaulipas* – Santa Engracia.

GUATEMALA: Alta Vera Paz – Trece Aguas, Esquintla.

BELIZE: Augustine§, Baking Pot§, Belmopan§, Benque Viejo – Arenal road§, Big Falls§, Caves Branch§, Central Farm§, mile 8 & mile 10-11 Chiquibul Road§, Cool Shade§, Esperanza§, Freetown (Sibun River)§, Gallon Jug§, Guacamallo§, mile 48 Hummingbird Highway§, Iguana Creek§, Millionario§, Mountain Pine Ridge§, Never Delay§, Never Delay road§, Rio Grande (6 km north of Punta Gorda)§, Roaring River§, San Antonio (Toldeo District)§, San Ignacio – Bullet Tree Falls road§, San Pedro Colombia§, Sayab Camp, Sibun Camp§.

HONDURAS: Tela (Lancetilla Valley).

EL SALVADOR: Cabañas – Rio Lempa, Sensuntepeque, Victoria.

NICARAGUA: Casa Colorada, Guapinolar, Rio Pantasma, Villa Somoza.

COSTA RICA: Anita Grande, Lagartos, Turrialba.

PANAMA: Bocas del Toro – Almirante; *Canal Zone* – Cruces Trail, Rio del Medio (Rio Gatun).

185. **Lutzomyia evangelistai Martins & Fraiha**

Lutzomyia evangelistai Martins & Fraiha, 1971 – *Revista Brasileira de Biologia,* **31**: 361-364 (M*, F*).

PERU: Madre de Dios – Mancilla (Alto Madre de Dios)§.

BRAZIL: Pará – Belém§.

186. **Lutzomyia gomezi (Nitzulescu)**

Phlebotomus gomezi Nitzulescu, 1930 – *Annales de Parasitologie Humaine et Comparée,* **9**: 247-252 (F *). Fairchild & Hertig, 1948 – *Annals of the Entomological Society of America,* **41**: 251-255 (M, F*). Mirsa, 1951 – *Revista de Sanidad y Asistencia Social,* **16**: 561-572 (M*, F*, P*, L*, E*). Fairchild & Hertig, 1953 – *Annals of the Entomological Society of America,* **46**: 377, 384 (M*, F*).

Flebotomus gomezi Barretto, 1946 – *Anais da Faculdade de Medicina da Universidade de São Paulo,* **22**: 3-7, 21, 23 (M*, F*).

Lutzomyia (Lutzomyia) gomezi Forattini, 1971 – *Papéis Avulsos de Zoologia,*

24: 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 240-241 (M*, F*, P*, L*).

Lutzomyia gomezi Ward & Ready, 1975 – *Journal of Entomology* (series A), **50:** 128 (E*).

Phlebotomus ?trinidadensis Theodor, 1932 – 7º *Reunion de la Sociedad Argentina de Patologia Regional del Norte:* 776-784 (F*). Theodor, 1932 – *Bulletin of Entomological Research,* **23:** 22 (F*).

Phlebotomus trinidadensis Callan, 1947 – *Revista de Entomologia,* **18:** 215-218.
Flebotomus (*Brumptomyia*) *suis* Rozeboom, 1940 – *American Journal of Hygiene,* **32:** (Section C) : 8-10 (M*, F*).

Phlebotomus japignyi Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication, No. 83 : 2-4, 9-10 (M*, F*).

EL SALVADOR: Cabañas – Rio Lempa, Victoria.
NICARAGUA: Villa Somoza.
COSTA RICA: Guanacaste, Pacuare, Puerto Jimenez, Rio Seco, San Carlos, Santa Cruz, Turrialba, Valle Hermoso.
PANAMA: Colon – Quebrada Bonita; *Panama* – Las Guacas (?); *Canal Zone* – Juan Mina, Limbo Field Station.
COLOMBIA: Amazonas – Letícia; *Antioquia* – Mutatá; *Bolivar* – Simití; *Boyacá* – Puerto Boyacá; *Caldas* – Victoria; *Caquetá* – Tres Esquinas; *Cesar* – Valledupar; *Guajira* – Dibulla, Maicao; *Huila* – Neiva; *Magdalena* – Santa Marta; *Meta* – Acácias, Guacavía, La Concepción; *Norte de Santander* – Cúcuta; *Santander* – San Vicente de Chucurí, Socorro; *Tolima* – Armero, Honda, Mariquita, Melgar; *Valle* – Rio Raposo; *Vichada* – Cumariana.
VENEZUELA: Aragua – Maracay, San Mateo; *Distrito Federal* – Caracas; *Falcón* – Churuguara, Mene de Mauroa; *Guárico* – Altagracia de Orituco, Guatopo; *Miranda* – Los Chorros, Ocumare del Tuy; *Monagas* – Caripito; *Nueva Esparta* – Isla de Margarita; *Sucre* – Montes (Cumanacoa); *Tachira* – La Colorada, San Cristobal; *Yaracuy* – San Felipe; *Zulia* – Bachaquero, Cabinas, Rio Negro, Zipayare.
TRINIDAD: Saint Augustine.
ECUADOR: Esmeraldas – Tachira, Hacienda Nueva Belém; *Guayas* – Juntas, Yaguachi (Estero Claro); *Los Rios* – Quevedo; *Manabí* – Calceta.
FRENCH GUYANA: Approuague – Saut Conori, Saut Japigny, Souvenir; *Cayenne* – Baduel, Crique Anguille.
PERU: Cuzco – Malanquiato; *Loreto* – Dos de Mayo, Patria Nueva, Teniente Lopez, Zungarococha; *Piura* – El Pasayo.
BRAZIL: Roraima – Caracaraí§; *Amapá* – Macapá; *Rondônia* – Guajará Mirim§; *Pará* – Ananindeua§, Belém, Castanhal§, Irituia§, Marabá, São Domingos do Capim; *Maranhão* – Cururupu§, Paço do Lumiar§, Turiaçu§, *Goiás* – Porto Nacional§; *Mato Grosso§.*

187. **Lutzomyia ignacioi** Young

Lutzomyia ignacioi Young, 1972 – *Journal of Medical Entomology*, **9**: 312, 313 (M*, F*).

VENEZUELA: Merida – Merida.

188. **Lutzomyia sherlocki** Martins, Silva & Falcão

Lutzomyia sherlocki Martins, Silva & Falcão, 1971 – *Revista Brasileira de Biologia*, **31**: 415-417 (M*). Martins, Llanos & Silva, 1975 – *Revista Brasileira de Biologia*, **35**: 657-659 (F*).

PERU: Cuzco – Pilcopata§, Quellouno§; *Madre de Dios* – Salvación (Alto Madre de Dios)§.

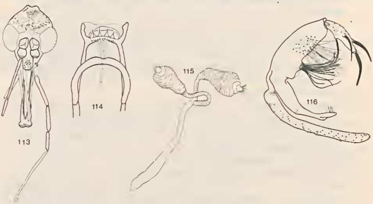
BRAZIL: Mato Grosso – Mato Grosso§.

Group VERRUCARUM

(Figs. 113-116, Map XXI)

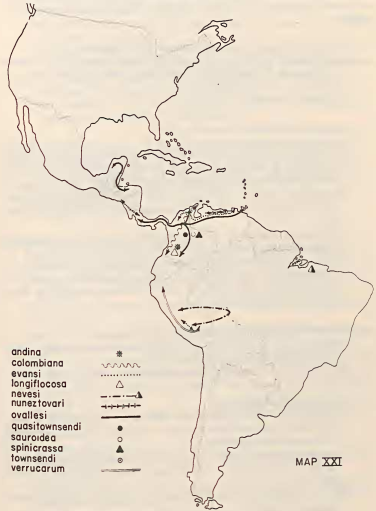
Fifth palpal segment very long, greater than the combined lengths of the third and fourth segments, sometimes approaching the combined lengths of segments 2, 3 and 4.

Cibarium of the female with four horizontal teeth and one or two rows of vertical teeth; pigment patch triangular and well-defined; cibarial arch complete. Body of the spermatheca weakly annulated or in the form of a creased bladder. Spermathecal ducts variable – individual duct and common duct short; or individual duct long and common duct absent; or individual and common ducts both long.



Figs. 113-116. Group *verrucarum*. *L. verrucarum:* female – head (113), cibarium (114), spermathecae and ducts (115); male – genitalia (116).

The verrucarum group


andina
colombiana
evansi
longiflocosa
nevesi
nuneztovari
ovallesi
quasitownsendi
sauroidea
spinicrassa
townsendi
verrucarum

MAP XXI

Dististyle of the male with four well-developed spines, with or without a subterminal seta. Basistyle with an inner basal tuft of hair-like setae.

This group corresponds to the group *verrucarum*, series *verrucarum* of Young & Fairchild (1974). Most species are known from both sexes. Groups characteristics are so well defined that we feel that the group *verrucarum* should be accepted as a subgenus.

189. **Lutzomyia andina** de Osorno, Osorno-Mesa & Morales-Alarcon

Lutzomyia andina de Osorno, Osorno-Mesa & Morales-Alarcon, 1972 – *Boletim do Museu de História Natural da Universidade Federal de Minas Gerais*, Zoologia No. 12: 2-8, 23, 25 (M*, F*).

COLOMBIA: Cundinamarca – Soacha.

190. **Lutzomyia colombiana** (Ristorcelli & van Ty)

Phlebotomus colombianus Ristorcelli & van Ty, 1941 – *Annales de Parasitologie Humaine et Comparée*, 18: 73 (F). Ristorcelli & van Ty, 1941 – *Annales de Parasitologie Humaine et Comparée*, 18: 263-266 (F*). Rozeboom, 1948 – *Annals of the Entomological Society of America*, 40: 708, 709, 711, 713 (M*).

Lutzomyia (Lutzomyia) colombiana Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 238 (M*, F*).

Phlebotomus monticolus var. *incarum* Ristorcelli & van Ty, 1941 – *Annales de Parasitologie Humaine et Comparée*, 18: 73-74 (F). Ristorcelli & van Ty, 1941 – *Annales de Parasitologie Humaine et Comparée*, 18: 266-268 (F*).

COLOMBIA: Cauea – Bolivar; *Guajira* – Maicao, Uribia; *Nariño* – Ancya, Chirristis, Colón, Consacá, Imués, La Union, Samaniego, Sandoná, San Pablo, Valle del Capulí: *Valle* – Centella.

191. **Lutzomyia disiuncta** Morales-Alarcón, Osorno & Osorno-Mesa

Lutzomyia disiuncta Morales-Alarcón, Osorno & Osorno-Mesa, 1974 – *Revista Brasileira de Biologia;* 34: 443-452 (M*, F*).

COLOMBIA: Cesar – Augustin Codazzi; *Cundinamarca* – Bogotá, D. E. (Suba).

192. **Lutzomyia evansi** (Nuñez-Tóvar)

Phlebotomus evansi Nuñez-Tóvar, 1924 – "Mosquitos y flebotomos de Venezuela": 44 (M). Ristorcelli & van Ty, 1941 – *Annales de Parasitologie Humaine et Comparée*, 18: 255-260 (M*, F*).

Lutzomyia (Lutzomyia) evansi Forattini, 1971 – *Papéis Avulsos de Zoologia*, 22: 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 254-255 (M*, F*).

Phlebotomus squamiventris Dyar & Nuñez-Tóvar, 1926 – *Insecutor Inscitiae Menstruus*, 14: 155.

Phlebotomus (Neophlebotomus) squamiventris Dyar, 1929 – *American Journal of Hygiene,* **10**: 121, 124 (M in key, F).
EL SALVADOR: Cabañas – Jutiapa, Puerto La Libertad, Victoria.
NICARAGUA: Guapinolar.
COSTA RICA: Guanacaste – Lagartos.
COLOMBIA: Bolivar – Mompós; *Guajira* – Maicao, Carraipía, Uribia, Urumita; *Magdalena* – Santa Marta.
VENEZUELA: Aragua – San Mateo; *Carabobo* – Mariara; *Distrito Federal* – Macuto; *Falcón* – Mene de Mauroa; *Guárico* – Altagracia de Orituco; *Miranda* – Guatopo, Ocumare del Tuy; *Nueva Esparta* – Isla de Margarita; *Zulia* – Bachaquero, Rio Negro, Selva de Tamanaco, Zipayare.
PERU: Apurimac – Abancay (Huamampata); *Cuzco* – Quillabamba§, Torre Blanca; *Junin* – Satipo (San José de Cutivereni).

193. **Lutzomyia longiflocosa** Osorno-Mesa, Morales-Alarcon, de Osorno & de Hoyos
Lutzomyia longiflocosa Osorno-Mesa, Morales-Alarcon, de Osorno & de Hoyos, 1970 – *Boletim do Museu de História Natural da Universidade Federal de Minas Gerais,* Zoologia, No. 6 : 1-8 (M*, F*).
COLOMBIA: Huila – Tello.

194. **Lutzomyia nevesi** (Damasceno & Arouck)
Flebotomus nevesi Damasceno & Arouck, 1956 – Mimeograph of a paper presented *at XIII Congresso Brasileiro de Higiene:* 9-11, Plate III (M*).
Lutzomyia (Trichopygomyia) nevesi Forattini, 1971 – *Papéis Avulsos de Zoologia,* **24**: 102.
Lutzomyia nevesi Velasco & Martins, 1974 – *Revista Brasileira de Biologia,* **34**: 94-96 (F*).
Lutzomyia (Trichopygomyia) pestanai (pro parte) Forattini, 1973 – "Entomologia Médica, 4º Volume": 314.
PERU: Cuzco – Pilcopata§, Quillabamba§; *Loreto* – Pucallpa§; *Madre de Dios* – Iberia§, Salvación (Alto Madre de Dios)§.
BRAZIL: Acre – Cruzeiro do Sul§, Feijó§, Rio Branco§; *Rondônia* – Guajará Mirim§; *Pará* – Capim.
BOLIVIA: La Paz – Los Yungas (Huacakarita); *Pando* – Villa Bella§.

195. **Lutzomyia nuneztovari** (Ortiz)
Phlebotomus nunez-tovari Ortiz, 1954 -- *Acta Biologica Venezuelica,* **1**: 232-233, 245-248 (M*).
Lutzomyia (Lutzomyia) ovallesi (pro parte) Forattini, 1973 – "Entomologia Médica, 4º Volume": 265.
VENEZUELA: Aragua – Rancho Grande; *Lara* – Duaca.

196. **Lutzomyia ovallesi (Ortiz)**

Phlebotomus ovallesi Ortiz, 1952 – *Revista de Sanidad y Asistencia Social*, **17**: 155-157 (M*).

Phlebotomus (Brumptomyia) ovallesi Lewis & Garnham, 1959 – *Proceedings of the Royal Entomological Society of London* (Series B), 28: 87-88 (F*).

Lutzomyia (Lutzomyia) ovallesi Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 100. Forattini, 1973 – "Entomologia Médica, 4º Volume": 265 (M*, F*, P, L*).

MEXICO: Chiapas – Palenque; *Quintana-Roo* – Rancho La Ceiba (Carretera Peto-Chetumal).

BELIZE: Baking Pot§, Benque Viejo – Arenal road§, Caves Branch§, Central Farm§, mile 8 Chiquibul Road§, Cool Shade, Gallon Jug§, Guacamallo§, mile 48 Hummingbird Highway§, Millionario§, Never Delay§, Rio Grande (8 km north of Punta Gorda)§, Roaring River§, San Antonio (Cayo District)§, Sayab Camp, Sibun Camp§, Spanish Lookout§.

HONDURAS: Tela (Lancetilla Valley).

COSTA RICA: Barranca, Finca Socorrito, Puntarenas.

PANAMA: *Colon* – Quebrada Bonita; *Canal Zone* – Gamboa, Juan Mina, Madden Forest Reserve.

COLOMBIA: Antioquia – Chigorodó; *Boyacá* – Puerto Boyacá; *Caldas* – Victoria; *Cundinamarca* – El Colegio, Villeta; *Magdalena* – Santa Marta, Rio Don Diego; *Santander* – Socorro.

VENEZUELA: Aragua – Rancho Grande; *Lara* – Duaca; *Miranda* – Guatopo; *Sucre* – Montes (Cumanacoa); *Yaracuy* – San Felipe.

TRINIDAD: Bush-Bush Forest.

197. **Lutzomyia quasitownsendi** de Osorno, Osorno-Mesa & Morales-Alarcon

Lutzomyia quasitownsendi de Osorno, Osorno-Mesa & Morales-Alarcon, 1972 – *Boletim do Museu de História Natural da Universidade Federal de Minas Gerais*, Zoologia No. 12 : 10-17, 27-29 (M*, F*).

COLOMBIA: Santander – Barbosa, Güepsa, Socorro.

198. **Lutzomyia sauroida** Osorno-Mesa, Morales-Alarcon & de Osorno

Lutzomyia sauroida Osorno-Mesa, Morales-Alarcon & de Osorno, 1972 – *Revista Brasileira de Biologia*, **32**: 433-437 (M*, F*).

COLOMBIA: Boyacá – Santa Ana.

199. **Lutzomyia spinicrassa** Morales-Alarcon, Osorno-Mesa, de Osorno & de Hoyos

Lutzomyia spinicrassa Morales-Alarcon, Osorno-Mesa, de Osorno & de Hoyos, 1969 – *Revista de la Academia Colombiana de Ciencias Exactas, Fisicas y Naturales*, 13: 383-385, 387-390 (M*, F*).

Lutzomyia (Lutzomyia) spinicrassa Forattini, 1973 – "Entomologia Médica, 4º Volume": 270 (M).

COLOMBIA: Boyacá – Almeida, Guateque, Guayatá.

200. **Lutzomyia townsendi (Ortiz)**

Phlebotomus townsendi Ortiz, 1960 – *Boletin Venezolano de Laboratorio Clinico*, 4: 23-25 (M*). Ortiz & Scorza, 1963 – *Acta Biologica Venezuelica*, 3: 347-349 (M*, F*).

Lutzomyia (Lutzomyia) townsendi Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 100. Forattini, 1973 – "Entomologia Médica, 4º Volume": 271, 272 (M*, F*).

VENEZUELA: Aragua – Rancho Grande.

201. **Lutzomyia verrucarum (Townsend)**

Phlebotomus verrucarum Townsend, 1913 – *Insecutor Inscitiae Menstruus*, 1: 107 (M, F).

Phlebotomus (Brumptomyia) verrucarum Shannon, 1929 – *American Journal of Hygiene*, 10: 83, 84 (M*, F*).

Lutzomyia (Lutzomyia) verrucarum Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 100. Forattini, 1973 – "Entomologia Médica, 4º Volume": 228-230 (M*, F*).

PERU: Ancash – Cañon del Pato (Cerros Coltán), Hacienda Colcas, Huallanca, Huaylas, Yungay (Callejón de Huaylas), Yuamarca; *Cajamarca* – Cajabamba, Cajamarca, Cascas (Platanal)§, Celendin; *Cuzco* – Chacoc, Paucartambo (Hacienda Trabajo); *Lima* – Valle Chilón (Km 47, Canta-San Miguel railroad), Valle Rimac (Chacahuaro, Chahuanto, Lanca, Matucana, Puente Carrión, Puente Challape, Puente Quita-Sombrero, Tambo Viso, Tornamesa, San Bartolomé), Valle Santa Eulalia (Barbablanca, Barbablanca-Callahuanca road, Callahuanca, Huinco, Vicas).

Group ATROCLAVATA

(Figs. 117-121, Map XXII)

Fifth palpal segment long, longer than the combined lengths of segments 3 and 4.

Cibarium of the female with four small horizontal teeth and many vertical teeth arranged in transverse rows; pigment patch strongly chitinized; cibarial arch complete. Posterior part of the pharynx with transverse folds armed with spines (long and strong or short and weak). Body of the spermatheca pear-shaped, with a prominent "head"; individual spermathecal duct long; common duct short.

Dististyle of the male with four well-developed spines, and without a subterminal seta. Basistyle with an inner basal tuft of a few hairs. Paramere and lateral lobe unarmed. Aedeagus long.

202. **Lutzomyia atroclavata (Knab)**

Phlebotomus atroclavatus Knab, 1913 – *Insecutor Inscitiae Menstruus*, 1: 135 (M, F). Fairchild & Hertig, 1948 – *Annals of the Entomological Society of America*, 41: 456-457 (M*, F*). Floch & Abonnenc, 1948 – *Institut Pasteur* *de la Guyane française et du Territoire de l'Inini,* Publication No. 178: 4-5, 15, 16 (M*, F*).

Lutzomyia (Coromyia) atroclavata Forattini, 1971 – *Papéis Avulsos de Zoologia,* **24**: 101. Forattini, 1973 – "Entomologia Médica, 4º Volume": 281 (M*, F*).

Phlebotomus Tejeraae Larrousse, 1921 – "Étude systematique et medicale des Phlébotomes": 64, 71, 73 (M,F). Larrousse, 1922 – *Bulletin de la Societé Zoologique de France,* **13**: 41, 45 (M, F).

Phlebotomus tejerae Galliard, 1934 – *Annales de Parasitologie Humaine et Comparée,* **12**: 197-199 (M*, F*).

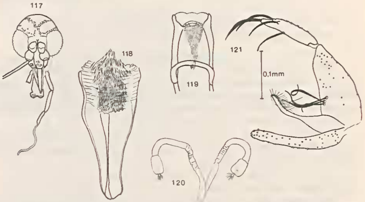
Phlebotomus guadeloupensis Floch & Abonnenc, 1945 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication No. 196 : 1-4 (M*, F*).

PANAMA: Chepillo Island, Old Panama, San José Island, Taboga Island.

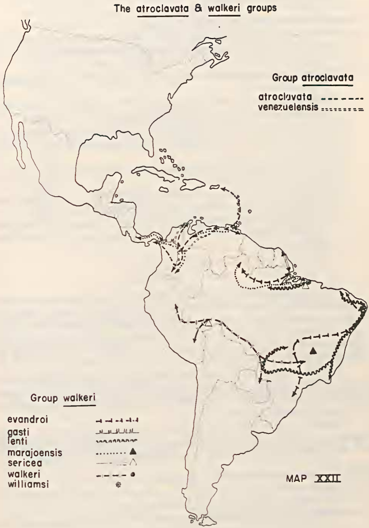
COLOMBIA: Boyacá – Puerto Boyacá; *Caldas* – Victoria; *Cundinamarca* – Puerto Salgar; *Guajira* – Maicao, Urumita; *Huila* – Neiva, Palermo, Tello; *Meta* – Guacavía, Villavicencio; *Norte de Santander* – Villa del Rosario; *Santander* – San Vicente de Chucuri; *Tolima* – Armero, Honda, Melgar.

VENEZUELA: Aragua – Choroni, Rancho Grande; *Falcón* – Mene de Mauroa; *Lara* – (after Scorza *et al,* 1967); *Miranda* – Guatopo; *Nueva Esparta* – Isla de Margarita; *Portuguesa* – (after Scorza *et al,* 1967); *Sucre* – Cumanacoa; *Yaracuy* – San Felipe; *Zulia* – Altagracia de Orituco, Bachaquero, Mene Grande, Rio Negro, Zipayare; *Territorio Delta Amacuro* – (after Scorza *et al,* 1967).

TRINIDAD: Bush-Bush Forest, Gasparee Island.



Figs. 117-121. Group *atroclavata. L. atroclavata:* female – head (117), pharynx (118), cibarium (119), spermathecae and ducts (120); male – genitalia (121).


The atroclavata & walkeri groups
Group atroclavata
atroclavata
venezuelensis
Group walkeri
evandroi
gasti
lenti
marajoensis
sericea
walkeri
williamsi
MAP XXII

SciELO

VIRGIN ISLANDS: Saint Croix.
GUADELOUPE: Grands Fonds du Moule, Petites Abymes.
MARTINIQUE: Grand Rivière.

203. **Lutzomyia venezuelensis** (Floch & Abonnenc)

Phlebotomus venezuelensis Floch & Abonnenc, 1948 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication No. 178 : 1-2, 14 (M*).

Lutzomyia (Trichopygomyia) venezuelensis Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102.

Phlebotomus zuliaensis Floch & Abonnenc, 1948 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication No. 178 : 6, 17 (F).

Lutzomyia (Coromyia) atroclavata (pro parte) Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 101. Forattini, 1973 – "Entomologia Médica, 4º Volume": 281.

Lutzomyia (Trichopygomyia) oswaldoi (pro parte) Forattini, 1973 – "Entomologia Médica, 4º Volume": 312.

COLOMBIA: *Guajira* – Maicao, Urumita; *Magdalena* – Minca, Santa Marta; *Meta* – Acacías, Puerto Aljure, Puerto Limón; *Norte de Santander* – Cúcuta.

VENEZUELA: *Aragua* – Rancho Grande; *Guárico* – Altagracia de Orituco; *Lara* – Duaca; *Portuguesa* – Biscucuy Road; *Zulia* – Bachaquero, Rio Negro, Selva de Tamanaco.

Group WALKERI

(Figs. 122-125, Map XXII)

Fifth palpal segment long, greater than the combined lengths of segments 3 and 4.

Cibarium of the female with four horizontal teeth, a row of vertical teeth and, in several species, groups of lateral teeth; pigment patch well-defined; cibarial arch complete or almost so. Body of the spermatheca pear-shaped or like a truncated cone, with smooth walls; individual spermathecal duct long; common duct shorter than the individual ducts, often very wide.

Dististyle of the male with four well-developed spines and, in most species, a subterminal seta. Basistyle with an inner basal tuft and, in several species, a median tuft of setae. Paramere simple or bifurcated, with or without a dorsal, basal lobe. Tips of the genital filaments frequently modified.

Young & Fairchild (1974) considered the species placed here as a series of the *migonei* group. Our groups *walkeri* and *migonei,* both with many species known from both sexes, could well be combined to form a subgenus composed of two series.

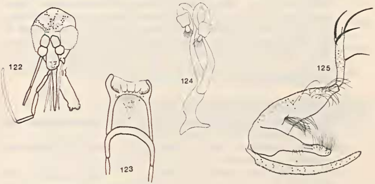
204. **Lutzomyia evandroi** (Costa Lima & Antunes)

Phlebotomus evandroi Costa Lima & Antunes, 1936 – *Brasil-Médico,* **50**: 419 (M*, F*).

Lutzomyia evandroi Martins, Falcão & Silva, 1962 – *Revista Brasileira de Malariologia e Doenças Tropicais,* **14**: - 381-383, 395 (M*).

Lutzomyia (Coromyia) evandroi Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 101. Forattini, 1973 – "Entomologia Médica, 4º Volume": 286 (M*, F*).

BRAZIL: Roraima – Caracaraí§; *Amapá* – Macapá; *Pará* – Santarém; *Ceará* – Acaraí, Beberibe, Camocim, Canindé, Capistrano, Caririaçu, Caucaia, Fortaleza, Icó, Ipu, Ipueiras, Itapipoca, Jaguaruana, Maranguape, Mecejana, Mocambo, Nova Russas, Pentencoste, Russas, Sobral, Tianguá, Uruburetama, Viçosa do Ceará; *Paraíba* – João Pessoa; *Pernambuco* – Recife; *Bahia* – Esplanada, Jacobina, Barreiras§; *Espírito Santo* – São João (?); *Paraná* – Santa Cruz do Monte Castelo; *Minas Gerais* – Arceburgo, Corinto§, Paracatu§; *Goiás* – Amaro Leite§.



Figs. 122-125. Group *walkeri*. *L. walkeri*: female – head (122), cibarium (123), spermathecae and ducts (124); male – genitalia (125).

205. **Lutzomyia gasti** (Sherlock)

Phlebotomus gasti Sherlock, 1962 – *Memórias do Instituto Oswaldo Cruz*, **60**: 326-327 (M*).

PANAMA: Darien – Cerro Quia.

COLOMBIA: Antioquia – Anori; *Caquetá* – Solano; *Santander* – San Vicente do Chucurí.

206. **Lutzomyia lenti** (Mangabeira)

Flebotomus lenti Mangabeira, 1938 – *Memórias do Instituto Oswaldo Cruz*, 33: 350 (M*).

Phlebotomus lenti Sherlock, 1957 – *Revista Brasileira de Biologia*, **17**: 78-84 (F*, P*, L*, E*).

Lutzomyia (Coromyia) lenti Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 101. Forattini, 1973 – "Entomologia Médica, 4º Volume": 287-288 (M*, F*, P*, L*).

Lutzomyia lentioides Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 103 (new name for *Flebotomus pinottii* Lucena, *nec* Damasceno & Arouck).

Flebotomus pinottii Lucena, 1960 – *Revista Brasileira de Malariologia e Doenças Tropicais*, **12**: 75-77, 79 (M*).

BRAZIL: *Pará* – Arariuna, Belém, Monte Alegre, Santarém; *Ceará* – Araripe, Aurora, Beberibe, Canindé, Caririaçu, Caucaia, Capistrano, Fortaleza, Granju, Ipu, Ipueiras, Itapipoca, Jagiariana, Maranguepe, Massapê, Mocambo, Nova Russas, Pentecoste, Russas, Santa Quitéria, Santanópolis, Senador Pompeu, Sobral, Solonópolis, Tianguá, Uruburetama, Viçosa do Ceará; *Paraíba* – João Pessoa§; *Pernambuco* – Mamanguape§; *Alagoas* – Arapiraca; *Bahia* – Jacobina; *Espírito Santo* – Baixo Guandu§, Colatina§; *Rio de Janeiro* – Macaé§; *Minas Gerais* – Arceburgo, Belo Horizonte§, Betim§, Buritizeiro§, Campos Gerais§, Caratinga§, Espinosa§, Grão Mogol§, Januária§, João Pinheiro§, Lagoa Santa§, Lassance, Mato Verde§, Monjolos§, Monsenhor Paulo§, Monte Azul§, Oliveira§, Paracatu§, Pedro Leopoldo§, Porteirinha§, Riacho dos Machados§, Tarumirim§, Tupaciguara§; *Goiás* – Amaro Leite§, Itumbiara§, Sítio d'Abadia§; *Mato Grosso* – Aquidauana§, Camapuã§.

207. **Lutzomyia marajoensis** (Damasceno & Causey)

Flebotomus marajoensis Damasceno & Causey, 1944 – *Memórias do Instituto Oswaldo Cruz*, **41**: 340-341, Plates I, V (M*).

Phlebotomus marajoensis Fairchild & Hertig, 1961 – *Annals of the Entomological Society of America*, **54**: 254 (M*, F*).

Lutzomyia (*Coromyia*) *marajoensis* Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 101.

Phlebotomus dubitans Sherlock, 1962 – *Memórias do Instituto Oswaldo Cruz*, **60**: 324-325 (M*).

Lutzomyia (*Coromyia*) *walkeri* (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 292.

PANAMA: *Cocle* – La Pintada; *Herrera* – Pese, Puerto Chitre; *Los Santos* – Guarare, Las Cruces, Las Palmas, Las Tablas, La Yeguada, Peña Blanca, Puerto Mensabe, Santo Domingo; *Veraguas* – Santa Maria.

COLOMBIA: *Antioquia* – Anori; *Boyacá* – Puerto Boyacá; *Caquetá* – Solano, Tres Esquinas; *Huila* – Telo; *Santander* – San Vicente de Chucurí.

VENEZUELA: *Carabobo* – Valencia; *Falcon* – Hombre Pintado, Mene de Mauroa; *Miranda* – Guatopo; *Zulia* – Zipayare.

TRINIDAD: U.S. Naval Base, Punta Delgada, San José Point, U.S. Naval Station.

BRAZIL: *Roraima* – Boa Vista§, Caracaraí§; *Amazonas* – Careiro§, Manaus§; *Pará* – Belém, Itaguará, Ponte de Pedras, Santarém; *Goiás* – Sítio d'Abadia§.

208. **Lutzomyia sericea** (Floch & Abonnenc)

Phlebotomus sericeus Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 80: 6-7, 17 (M*).

Flebotomus deanei Damasceno, Causey & Arouck, 1945 – *Memórias do Instituto Oswaldo Cruz,* 43: 5, 6-8, 25 (M*).
FRENCH GUYANA: *Cayenne* – Baduel.
BRAZIL: *Amapá* – Macapá; *Acre* – Rio Branco§; *Pará* – São Domingos do Capim.

209. **Lutzomyia walkeri** (Newstead)
Phlebotomus walkeri Newstead, 1914 – *Bulletin of Entomological Research,* 5: 190 (alternative name for *Phlebotomus longipalpis* Newstead, *nec* Lutz & Neiva).
Lutzomyia walkeri Lewis, 1967 – *Proceedings of the Royal Entomological Society of London* (Series B), 36: 132, 133 (M*, F*).
Lutzomyia (*Coromyia*) *walkeri* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 101. Forattini, 1973 – "Entomologia Médica, 4º Volume": 292 (M*, F*).
Phlebotomus longipalpis Newstead, 1914 – *Bulletin of Entomological Research,* 5: 189-190 (M*, F*).
PERU: *Loreto* – Dos de Mayo, Tigrillo, Vinucuru; *Cuzco* – Assunción, Pilcopata§.
BRAZIL: *Acre* – Cruzeiro do Sul§, Feijó§, Rio Branco§; *Rondônia* – Guajará Mirim§, Porto Velho§, Rio Abunã (?); *Pernambuco* – Rio Tinto§; *Minas Gerais* – Arinos§; *Goiás* – Itumbiara§; *Mato Grosso* – Barro do Bugres§, Rosário d'Oeste§.
BOLIVIA: *Pando* – Villa Bella§.
PARAGUAY: Cerro Peró.

210. **Lutzomyia williamsi** (Damasceno, Causey & Arouck)
Flebotomus williamsi Damasceno, Causey & Arouck, 1945 – *Memórias do Instituto Oswaldo Cruz,* 43: 2-4 (M*).
BRAZIL: *Pará* – Belém, Peixe Boi.

211. **Lutzomyia sp. de Baduel** (Floch & Abonnenc)
Phlebotomus sp. de Baduel, Floch & Abonnenc, 1945 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 98: 1-2 (F*).
COLOMBIA: *Vichada* – Cumariana.
FRENCH GUYANA: *Cayenne* – Baduel.

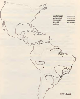
Group MIGONEI

(Figs. 126-129, Map XXIII)

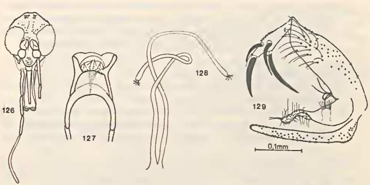
Fifth palpal segment long, longer than the combined lengths of segments 3 and 4.

Cibarium of the female with four horizontal teeth and only a few vertical teeth; pigment patch pale; cibarial arch complete. Body of the spermatheca capsulate or tubular; individual spermathecal duct long; common duct short or absent.

The *migonei* group


cortelezzii
edwardsi
migonei
pessoai
sallesi

MAP XXIII



Figs. 126-129. Group *migonei*. *L. migonei*: female – head (126), cibarium (127), spermathecae and ducts (128); male – genitalia (129).

Dististyle of the male short, with four well-developed spines and a subterminal seta. Basistyle with an inner basal tuft of 3-7 hair-like setae and sometimes with a diffuse group of finer hairs medianly. Paramere variously modified, unarmed in all but one species.

212. **Lutzomyia cortelezzii** (Brèthes)

Phlebotomus cortelezzii Brèthes, 1924 – *Semana Médica*, 30: 361 (M, F). Theodor, 1932 – *Bulletin of Entomological Research*, 23: 21-22 (M*, F*).

Lutzomyia (*Coromyia*) *cortelezzi* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 101. Forattini, 1973 – "Entomologia Médica, 4º Volume": 285 (M*, F*).

PERU: *Cuzco* – Quellouno§; *Huánuco* – Tingo-Maria§; *Madre de Dios* – Iberia, Puerto Maldonado.

ARGENTINA: *Buenos Aires* – La Plata, Ramos Mejia; *Catamarca* – Tapso; *Chaco* – Colonia Benitez, La Aurora, Presidente Roca, Resistencia, Saenz Peña; *Formosa* – Comandante Fontana; *Jujuy* – La Mendieta; San Pedro; *Salta* – Rosario de la Frontera; *Santiago del Estero* – Colonia Dora, El Mojon, Puente Negro; *Tucuman* – Burruyacú, Parque Aconquija, Yerba Buena.

URUGUAY: *Montevideo*.

213. **Lutzomyia edwardsi** (Mangabeira)

Flebotomus edwardsi Mangabeira, 1941 – *Memórias do Instituto Oswaldo Cruz*, 36: 201-210 (M*, F*).

Lutzomyia (*Coromyia*) *edwardsi* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 101. Forattini, 1973 – "Entomologia Médica, 4º Volume": 285-286 (M*, F*).

BRAZIL: *Espírito Santo* – Viana§; *Rio de Janeiro* – Caxias§, Ibicuí§, Itatiaia, Mangaratiba§, Marquês de Valença§, Nova Iguaçu, Petrópolis§, *Paraná* – Ponta Grossa§; *Santa Catarina* – Joinville§; *Minas Gerais* – Belo Horizonte, Caratinga§, Conceição do Rio Verde§, Dores do Turvo§, Tarumirim§.

214. Lutzomyia migonei (França)

Phlebotomus Migonei França, 1920 – *Bulletin de la Societé Portugaise des Sciences Naturales*, 8: 230 (M).

Phlebotomus migonei Theodor, 1932 – *Bulletin of Entomological Research*, 23: 19, 20 (M*, F*). Barretto, 1941 – *Anais da Faculdade de Medicina da Universidade de São Paulo*, 17: 380-385, 422, 424, 425, Plates XII-XVI, LII (P*, L*, E).

Lutzomyia (*Coromyia*) *migonei* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 101. Forattini, 1973 – "Entomologia Médica, 4º Volume": 274-277 (M*, F*, P*, L*).

Phlebotomus Rangeli Nuñez-Tóvar, 1924 – "Mosquitos y flebotomos de Venezuela": 45 (M, F).

Phlebotomus araozi Patterson & Shannon, 1926 – *Semana Médica*, 33: 236-237 (M, F). Patterson & Shannon, 1926 – *Boletin del Instituto de Clinica Quirurgica*, 2: 300-304 (M*).

COLOMBIA: *Magdalena* – Rio Don Diego.

VENEZUELA: *Aragua* – Choroní, Maracay, Ocumare de la Costa, Rancho Grande; *Distrito Federal* – Caracas; *Sucre* – Montec (Cumanacoa); *Yaracuy* – San Felipe.

BRAZIL: *Amapá* – Macapá; *Acre* – Cruzeiro do Sul§, Rio Branco§; *Pará* – Belém, Irituia§; *Maranhão* – Turiaçu; *Ceará* – Baturité, Fortaleza, Maranguape, Pacatuba, Tianguá, Uruburetama, Viçosa do Ceará; *Paraíba* – Alagoa Grande; *Pernambuco* – Pesqueira, Quipapá; *Bahia* – Gandu§, Itabuna§, Itapebi§, Una§; *Espírito Santo* – Aracruz§, Colatina§, Itarana§, Linhares§; *Rio de Janeiro* – Angra dos Reis§, Duque de Caxias§, Ibicuí§, Itacuruçá§, Rezende (Itatiaia), Macaé, Magé§; Mangaratiba, Nova Iguaçu§, Petrópolis, Rio Bonito§, Rio de Janeiro, Vassouras§; *São Paulo* – Andradina, Araçatuba, Araraquara, Avanhandava, Avaré, Barra Bonita, Birigui, Capão Bonito§, Catanduva, França, Itaporanga, José Bonifácio, Junqueirópolis, Leme, Lins, Marília, Martinópolis, Mogi das Cruzes, Mogi Mirim, Monte Aprazível, Novo Horizonte, Olímpia, Ourinhos, Pacaembu, Palmital, Penápolis, Piedade, Piraju, Pompéia, Porto Feliz, Presidente Epitácio, Presidente Prudente, Presidente Venceslau, Rancharia, Regente Feijó, Rio Preto, Santo Anastácio, São José dos Campos, São Paulo, Sorocaba, Tamoio, Tanabi, Tietê, Tupã, Una, Valparaíso, Vera Cruz; *Paraná* – Altonia, Cambará, Foz do Iguaçu, Guaraniaçu§, Guarapuava§, Imbituva§, Nova Esperança, Peabiru, Paranavaí, Perianito, Santo Antônio§, Salto de Itararé, Santa Cruz do Monte Castelo; *Santa Catarina* – Dionísio Cerqueira§, Joaçaba§, Mondaí§, Papanduva§, São Carlos§, Xanxerê§; *Rio Gran-*

de do Sul – São José do Norte; *Minas Gerais* – Alfenas§, Araxá§, Arceburgo, Arcos§, Belo Vale§, Buritizeiros§, Campanário§, Caratinga§, Central de Minas§, Conceição de Ipanema§, Conceição do Rio Verde§, Conselheiro Pena§, Coronel Fabriciano§, Governador Valadares§, Galiléia§, Iapu§, Itambacuri§, Itanhomi§, Jaboticatubas§, Januária§, Juiz de Fora§, Lagoa Santa§, Leopoldina§, Manhuaçú§, Mantena§, Monjolos§, Monsenhor Paulo§, Mutum§, Nova Lima§, Peçanha§, Pedro Leopoldo§, Pocrane§, Porteirinha§, Rio Casca§, São João do Oriente§, Sardoá§, Taquaraçu§, Turumirim§; *Mato Grosso* – Bataguaçu, Caarapó§, Ponce.

ARGENTINA: *Catamarca* – Tapso; *Jujuy* – Caliligua, El Palmar, El Talar, La Esperanza, Ledesma, San Pedro; *Misiones* – Bernardo de Irigoyen, Puerto Banberg; *Salta* – Campamientos Tablillas, Embaración, Oran, Rosário de la Frontera, Tabacal, Tablillas, Tres Pozos; *Santiago del Estero* – El Mojón, La Banda, Santiago del Estero; *Tucuman* – Aguillares, Arroyo El Tejar, Burruyacú, Concepcion, El Churqui, Monte Bello, Parque Aconquija, Quebrada de Lulles, Rio Sali, 7 de Abril, Tafi Viejo, Taguá, Tapia, Tucuman, Yacuchina, Yerba Buena; *Formosa* – Chiriguamos, El Coatí.

PARAGUAY: Asunción, Chaco.

215. Lutzomyia pacae (Floch & Abonnenc)

Phlebotomus pacae Floch, 1943 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 60: 17, 62, 63 (*nomen nudum*). Floch & Abonnenc, 1943 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 61: 1-6 (M*, F*).

Lutzomyia (*Coromyia*) *pacae* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 101. Forattini, 1973 – "Entomologia Médica, 4º Volume": 288 (M*, F*).

Flebotomus ferreirai Causey & Damasceno, 1945 – *Memórias do Instituto Oswaldo Cruz,* 42: 656-659 (M*).

SURINAM: Berg en Dal.

FRENCH GUYANA: *Approuague* – Balourou, Guillaume, Saut Conori; *Caux; Cayenne* – Baduel, Cabassou, Crique Anguille, Montabo, Rorota; *Haute Mana* – Souvenir; *Iracoubo* – Crique Blanche; *Oyapock* – Maripa; *Sinnamary* – Saut Tigre.

BRAZIL: *Pará* – Belém, Marabá, Peixe Boi; *Roraima* – Caracaraí§.

216. Lutzomyia sallesi (Galvão & Coutinho)

Phlebotomus sallesi Galvão & Coutinho, 1940 – *Arquivos de Higiene e Saúde Pública,* 5: 15-16, 21, 23, 25, 27 (M*, F*).

Lutzomyia (*Coromyia*) *sallesi* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 101.

Lutzomyia (*Coromyia*) *cortelezzii* (*pro parte*) Forattini, 1973 – "Entomologia Médica, 4º Volume": 285.

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

BRAZIL: *Acre* – Rio Branco§; *Ceará* – Ipu, Ipueiras, Itapagé, Jaguaruana, Juazeiro do Norte, Missão Velha, Quixadá, Russas, Sobral; *Pernambuco* – Afogados da Ingazeira, Itaporanga, Pedra, São José do Egito; *Rio de Janeiro* – Rezende (Itatiaia), Petrópolis§; *São Paulo* – Araçatuba, Mogi das Cruzes, Santo Amaro, São Paulo; *Minas Gerais* – Além Paraíba§, Alfenas§, Arceburgo, Arinos§, Bambuí§, Barra Longa§, Belo Horizonte§, Bocaiuva§, Buenópolis§, Buritizeiro§, Caratinga§, Cássia§, Conceição de Ipanema§, Conselheiro Pena§, Cordisburgo§, Corinto§, Coronel Fabriciano§, Curvelo§, Espinosa§, Felixlandia§, Itambacuri§, Itanhomi§, Itapecerica§, Jaboticatubas§, Janaúba§, Januária§, Lagoa Santa§, Leopoldina§, Matias Barbosa§, Mato Verde§, Matozinhos§, Moema§, Monjolos§, Monte Azul§, Monte Carmelo§, Oliveira§, Paracatu§, Patos de Minas§, Peçanha§, Pedro Leopoldo§, Pocrane§, Porteirinha§, Pratápolis§, Presidente Olegário§, Rio Casca§, Santo Antônio do Amparo§, Santo Hipólito§, Simão Pereira§, Taquaraçu§, Tarumirim§, Uberaba§, Unaí§, Várzea da Palma§, Vazante§, Volta Grande§; *Goiás* – Amaro Leite§, Anápolis§, Ceres§, Jaraguá§, Rianópolis§, Sítio d'Abadia§, Itumbiara§; *Mato Grosso* – Camapuã§, Maracaju§, Nova Andradina, Rosário d'Oeste§.
BOLÍVIA: *La Paz* – Los Yungas (Huancapampa, Misquimayo, Mururata, Suiqui).

Group BRASILIENSIS

(Figs. 130-134, Map XXIV)

Fifth palpal segment rather short, about equal to the combined lengths of segments 3 and 4. Ascoids bigeniculate, with the posterior extension short or, at most, reaching to about half the distance to the base of its antennal segment. Eyes unusually large in several species.

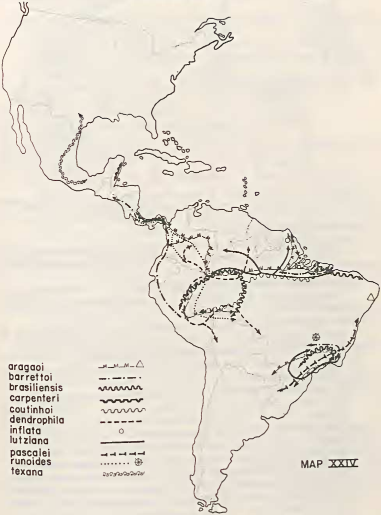
Cibarium of the female with many (10-12 or more) horizontal teeth in several species but occasionally with fewer (six horizontal teeth in one species, four in another species), and with two or three rows of vertical teeth; pigment patch well-defined, often semi-circular in shape; cibarial arch complete or incomplete. Body of the spermatheca either smooth walled and balloon-shaped with a diffuse "head", or cylindrical and annulated with a prominent "head"; individual spermathecal duct short with thickened walls or long with thin walls; common duct long, short or absent.

Male terminalia similar to the subgenus *Psathyromyia;* some species with a large aedeagus in the form of an elongate triangle, genital filaments very long (up to 7x the length of the genital pump) in some species, and often with modified or elaborate tips.

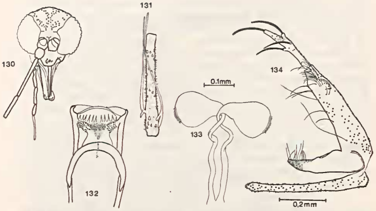
Young & Fairchild (1974) placed these species in the *aragaoi* group, divided into the *aragaoi* and *brasiliensis* series. *L. aragaoi* and *L. brasiliensis* were described (Costa Lima, 1932) in the same paper and, in fact, the descriptions were given on the same page, *brasiliensis* appearing above *aragaoi*; for this reason, we prefer *brasiliensis* as the name for the group. The appearance of the male terminalia relates species of the *brasiliensis* group to the subgenus *Psathyromyia* and, to a lesser extent, to those of the *dreisbachi* group. The appearance of the spermatheca relates some species to *Psathyromyia*, others to the *dreisbachi* group.

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

The *brasiliensis* group


aragaoi
barrettoi
brasiliensis
carpenteri
coutinhoi
dendrophila
inflata
lutziana
pascalei
runoides
texana

MAP XXIV



Figs. 130-134. Group *brasiliensis*. *L. aragaoi:* female – head (130), 4th antennal segment (131), cibarium (132), spermathecae and ducts (133); male – genitalia (134).

217. **Lutzomyia aragaoi** (Costa Lima)

Phlebotomus aragaoi Costa Lima, 1932 – *Memórias do Instituto Oswaldo Cruz*, 26: 48 (M*). Fairchild & Hertig, 1953 – *Annals of the Entomological Society of America*, 46: 22, 23 (M*, F*).

Psychodopygus (Trichophoromyia) aragaoi Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume", 456-457 (M*, F*).

Phlebotomus heckenrothi Floch & Abonnenc, 1942 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication No. 38 : 8-10 (F*).

PANAMA: Canal Zone – Gatun, Madden Lake, Mojinga Swamp.

COLOMBIA: Amazonas – Letícia; *Valle* – Lower Anchicaya Dam, Rio Raposo; *Vichada* – Cumariana.

FRENCH GUYANA: Approuage – Crique Anguille; *Cayenne* – Baduel, Cabassou, Crique Anguille, Montabo, Rorota; *Iracoubo* – Crique Blanches; Oyapock – Cafesoca, Maripa, Saint Georges.

BRAZIL: *Amazonas* – Coari, Manacapuru, Manaus, Parintins, São Paulo de Olivença; *Acre* – Cruzeiro do Sul§; *Rondônia* – Guajará Mirim§; *Pará* – Ananindeua, Anhangá, Arariuna, Belém, João Coelho, Monte Alegre, Ourém, Peixe Boi, Santarém, São Domingos do Capim; *Maranhão* – Cururupu; *Minas Gerais* – Arceburgo, Itapecerica§, Jaboticatubas, Lagoa Santa§, Lassance, Paracatu§, Patos de Minas§, Sabará§; *Pernambuco* – Itamaracá, Igaraçu, Recife; *Paraná* – Altona; *Mato Grosso* – Camapuan§, Nioaque§; *Goiás* – Itumbiara§.

PARAGUAY: Aca-Poi.

PERU: Huánuco – Cachicoto§.

218. **Lutzomyia barrettoi** (Mangabeira)

Flebotomus barrettoi Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz*, 37: 148-152 (M*).

Phlebotomus barrettoi Fairchild & Hertig, 1953 – *Annals of the Entomological Society of America*, 46: 22, 23, 26 (M*, F*).

Psychodopygus (Trichophoromyia) barrettoi Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 457-459 (M*, F*).

EL SALVADOR: Cabañas – Canton Llano Grande (Sensuntepeque), Rio Lempa.

NICARAGUA: Guapinolar.

COSTA RICA: Guápiles – Suerre.

PANAMA: Canal Zone – Gatun, Mojinga, Swamp.

COLOMBIA: Valle – Buenaventura, Rio Raposa.

FRENCH GUYANA: Cayenne – Rorota; *Iracoubo* – Crique Blanche; *Oyapock* – Maripa.

ECUADOR: Guayas – Laranjal, Manglaralto; *Los Rios* – Quevedo; *Manabí* – Calceta.

PERU: Huánuco – Cachicoto§.

BRAZIL: Pará – Belém, Irituia, Itaguaré, Santarém; *Rio de Janeiro* – Petrópolis§; *Minas Gerais* – Marlieria§; *Goiás* – Maurilândia§.

219. **Lutzomyia brasiliensis** (Costa Lima)

Phlebotomus brasiliensis Costa Lima, 1932 – *Memórias do Instituto Oswaldo Cruz*, 26: 48 (M). Mangabeira & Sherlock, 1962 – *Memórias do Instituto Oswaldo Cruz*, 60: 312-317 (M*, F*, P*, L*).

Psychodopygus (Trichophoromyia) brasiliensis Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 460-462 (M*, F*, P*, L*).

Lutzomyia abunaensis Martins, Falcão & Silva, 1965 – *Revista Brasileira de Biologia*, 25: 17-19 (M*). (New Synonymy).

Psychodopygus (Trichophoromyia) abunaensis Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 452 (M*).

FRENCH GUYANA: Crique Anguille.

BRAZIL: Amazonas – Coari, Manaus, Manicoré, São Paulo de Olivença; *Rondônia* – Guajará Mirim§ Porto Velho§; *Pará* – Belém, João Coelho; *Maranhão* – Cururupu§; *Ceará* – Fortaleza, Massapê, Russas; *Bahia* – Cachoeirao, Pojuca, Salvador; *Rio de Janeiro* – Cardoso Moreira; *São Paulo* – Cajuru, Igarapava; *Minas Gerais* – Arceburgo, Belo Horizonte§, Conceição do Rio Verde§, Corinto§, Jaboticatubas, João Pinheiro§, Lagoa Santa§, Lassance, Sabará§, Tupaciguara§; *Goiás* – Itumbiara§.

PERU: Huánuco – Cachocoto§, Tingo-Maria§.

220. **Lutzomyia carpenteri** (Fairchild & Hertig)

Phlebotomus carpenteri Fairchild & Hertig, 1953 – *Annals of the Entomological Society of America,* 46: 28, 29, 31 (M*, F*).

Psychodopygus (Trichophoromyia) carpenteri Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 462 (M*, F*).

MEXICO: Quintana Roo – Rancho La Ceiba.

BELIZE: Baking Pot§, Benque Viejo – Arenal road§, Central Farm§ mile 8 & 10-11 Chiquibul Road§, Esperanza§, Freetown (Sibun River)§, Mountain Pine Ridge§, Roaring River§, San Antonio (Cayo District)§, San Ignacio – Bullet Tree Falls road§.

COSTA RICA: Suerre de Guápiles.

PANAMA: Bocas del Toro – Almirante; *Cocle* – El Valle; *Colón* – ? ; *Darién* – Patiño Point; *Los Santos* – Las Tablas; *Canal Zone* – Chiva-Chiva, Juan Mina, Limbo Field Station, Mojinga Swamp, Paraiso.

221. **Lutzomyia coutinhoi** (Mangabeira)

Flebotomus coutinhoi Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* 37: 152-157 (M*).

Psychodopygus (Trichophoromyia) coutinhoi Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 463 (M*).

PERU: Huánuco – Cachicoto§.

BRAZIL: Amazonas – Manaus; *Rondônia* – Guajará Mirim§; *Pará* – Ananindeua, Anhagá, Arariuna, Belém, João Coelho, Ourém, São Domingos do Capim.

222. **Lutzomyia dendrophila** (Mangabeira)

Flebotomus dendrophylus Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* 37: 139-143 (M*).

Lutzomyia (Trichopygomyia) dendrophila Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 305-306 (M*).

COLOMBIA: Amazonas – Letícia;*Caquetá* – Florencia, Solano; *Meta* – Acacias, Guamal, San Martin.

FRENCH GUYANA: Cayenne – Chaumière.

PERU: Cuzco – Pilcopata§, Quellouno§; *Huánuco* – Cachicoto, Tingo-Maria§; *Loreto* – Pucallpa§; *Madre de Dios* – Iberia§, Mancilla§, Salvación§.

BRAZIL: Roraima – Boa Vista§, Caracaraí§; *Amapá* – Macapá; *Amazonas* – Benjamin Constant, Fonte Boa, Manaus, São Paulo de Olivença, Tabatinga, Tefé; *Pará* – Belém, Castanhal§, Irituia, João Coelho, Ourém, Peixe Boi,

São Domingo do Capim, São Miguel do Guamá; *Acre* – Cruzeiro do Sul§, Feijó§, Rio Branco§; *Maranhão* – Turiaçu§; *Mato Grosso* – Mato Grosso§; *Rondônia* – Porto Velho§, Guajará Mirim§.
BOLIVIA: La Paz – Los Yungas.

223. **Lutzomyia inflata** (Floch & Abonnenc)
Phlebotomus inflatus Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication No. 80 : 9-10, 19 (M*).
Psychodopygus (Trichophoromyia) inflatus Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 469-471 (M*, F*, L*).
Phlebotomus aragaoi Floch & Abonnenc, 1945 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication No. 100 : 16, 20 (F*).
FRENCH GUYANA: Cayenne – Baduel, Cabassou, Crique Anguille, Montabo, Rorota; *Iracoubo* – Crique Blanche; *Oyapock* – Cafesoca, Maripa, Saint Georges.

224. **Lutzomyia lutziana** (Costa Lima)
Phlebotomus Lutzianus Costa Lima, 1932 – *Memórias do Instituto Oswaldo Cruz,* 26: 49, 55 (M*).
Lutzomyia (Trichopygomyia) lutziana Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 310 (M*, F*).
Phlebotomus sp. de Cayenne, Floch & Abonnenc, 1945 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication No. 98 : 3 (F*).
VENEZUELA: Territorio Federal Amazonas – Atabapo (Ocano).
FRENCH GUYANA: Cayenne – Baduel, Crique Anguille, Montabo, Rorota; *Oyapock* – Maripa, Saint Georges, Tampac.
BRAZIL: Roraima – Caracaraí; *Amazonas* – Benjamin Constant, Coari, Fonte Boa, Manacapuru, São Paulo de Olivença, Tefé; *Pará* – Belém, Irituia, João Coelho, Monte Alegre, Ourém, Peixe Boi, Santarém, São Domingos do Capim; *Maranhão* – Cururupu§; *Rio de Janeiro* – Cardoso Moreira, Macaé§, Magé§, Nova Iguaçu§; *São Paulo* – Igarapava; *Minas Gerais* – Arceburgo, Belo Horizonte§, Buritizeiro§, Caratinga§, Curvelo§, Itapecerica§, Jaboticatubas§, João Pinheiro§, Lagoa Santa§, Lassance, Leopoldina§, Marlieria§, Paracatu§, Tupaciguara§; *Goiás* – Itumbiara§; *Mato Grosso* – Barra do Garças§, Nioaque§.

225. **Lutzomyia pascalei** (Coutinho & Barretto)
Phlebotomus pascalei Coutinho & Barretto, 1940 – *Anais da Faculdade de Medicina da Universidade de São Paulo,* 16: 197-199, 205 (M*). Sherlock & Carneiro, 1962 – *Memórias do Instituto Oswaldo Cruz,* 60: 432-433 (F*). Carneiro & Sherlock, 1964 – *Revista Brasileira de Malariologia e Doenças Tropicais,* 16: 314, 315, 324 (P*).

Psychodopygus (Trichophoromyia) pascalei Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 477 (M*, F*, P).

BRAZIL: Bahia – Cachoeira, Itaparica, Pojuca, Salvador; *Espírito Santo* – Aracruz§, Linhares§; *Rio de Janeiro* – Nova Iguaçu§; *São Paulo* – Salesópolis, São José dos Campos, São Paulo; *Minas Gerais* – Belo Horizonte§, Dom Joaquim§, Nova Lima§.

ARGENTINA: Misiones – Cerro Azul.

226. **Lutzomyia runoides** (Fairchild & Hertig)

Phlebotomus runoides Fairchild & Hertig, 1953 – *Annals of the Entomological Society of America*, 46: 30-32 (M*, F*).

Psychodopygus (Trichophoromyia) runoides Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105.

Psychodopygus (Trichophoromyia) inflatus (pro parte) Forattini, 1973 – "Entomologia Médica, 4º Volume": 469.

COSTA RICA: Suerre de Guápiles.

PANAMA: *Bocas del Toro* – Almirante; *Colon* – Quebrada Bonita; *Panama* – Cerro Campana, Cerro Jefe; *Canal Zone* – Barro Colorado Island, Juan Mina, Mojinga Swamp.

COLOMBIA: *Amazonas* – Letícia; *Caquetá* – Florencia; *Valle* – Rio Raposo.

BRAZIL: *Acre* – Cruzeiro do Sul§; *Rondônia* – Guajará Mirim§; *Minas Gerais* – Arinos§.

227. **Lutzomyia texana** (Dampf)

Phlebotomus texanus Dampf, 1938 – *Anales de la Escuela Nacional de Ciencias Biologicas*, 1: 119-122 (M*, F*).

Psychodopygus (Trichophoromyia) texanus Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 480 (M*, F*).

UNITED STATES: Texas – Aransas Refuge (Aransas County); San Antonio (Bexar County), Fredericksburg (Gillespie County), Welder Wildlife Refuge (San Patricio County), Garner State Park (Uvalde County).

MEXICO: Guerrero – Iguala; *Jalisco* – Autlán; *Morelos* – Cuautla, Cuernavaca; *Oaxaca* – Taniche; *Tamaulipas* – Santa Engracia.

228. **Lutzomyia** sp. de Maripa (Floch & Abonnenc)

Phlebotomus sp. de Maripa, Floch & Abonnenc, 1946 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication No. 140 : 3-4, 6 (F*).

FRENCH GUYANA: Oyapock – River Oyapock (near the Brazilian frontier).

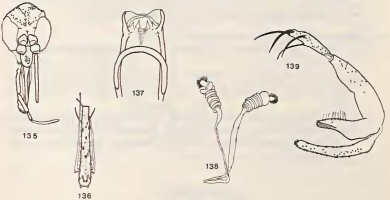
Group LANEI

(Figs. 135-139, Map XXV)

Fifth palpal segment equal to or a little longer than the combined lengths of segments 3 and 4.

Cibarium of the female with four horizontal teeth and one or two rows of vertical teeth; pigment patch well-defined; cibarial arch complete. Body of the spermatheca annulated with a globose terminal segment; individual spermathecal duct long and narrow; common duct short.

Diststyle of the male with four well-developed spines, subterminal seta lacking. Basistyle without an inner basal tuft of setae; basistyle narrow and strongly curved. Paramere simple but with the dorsal surface convexly curved.



Figs. 135-139. Group *lanei. L. lanei*: female – head (135), 4th antennal segment (136), cibarium (137), spermathecae and ducts (138); male – genitalia (139).

229. **Lutzomyia digitata** (Damasceno & Arouck)

Flebotomus digitatus Damasceno & Arouck, 1950 – *Revista do Serviço Especial de Saúde Pública,* 3: 465-467, 470-471 (M*).

Lutzomyia (Trichopygomyia) digitata Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 306 (M*).

BRAZIL: Bahia – Buararema§, Canavieiras§, Ilhéus, Itabuna§, Taperoá§.

230. **Lutzomyia lanei** (Barretto & Coutinho)

Phlebotomus lanei Barretto & Coutinho, 1941 – *Papéis Avulsos do Departamento de Zoologia, Secretaria da Agricultura, São Paulo,* 1: 185-187 (M*). Barretto, 1941 – *Anais da Faculdade de Medicina da Universidade de São Paulo,*

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

17: 412-416, Plates II, XLII-XLV, LI (P*, L*, E*). Coutinho & Barretto, 1941 – *Revista de Biologia e Higiene*, 11: 77-78, Plate II (F*).

Lutzomyia (Trichopygomyia) lanei Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 306-307 (M*, F*, P*, L*).

BRAZIL: Espírito Santo – Linhares§; *Rio de Janeiro* – Mangaratiba§, Nova Iguaçu§, Petrópolis, Rezende (Itatiaia); *São Paulo* – Apiaí§, Bababal§, Caraguatatuba§, Itaporanga, Salesópolis; *Paraná* – Capanema§, Foz do Iguaçu§, Guaraniaçu§, Guarapuava§, Laranjeiras do Sul§, Salto do Itararé (?), Santo Antônio§, São José dos Pinhais§; *Santa Catarina* – Blumenau§, Brusque§, Catanduvas§, Dionísio Cerqueira§, Florianópolis§, Gaspar§, Indial§, Joaçaba§, Joinville§, Rio Negrinho§, São Carlos§, São Miguel d'Oeste§, Xanxeré§; *Minas Gerais* – Coronel Fabriciano§, Santana do Riacho§, São João Evangelista§, Simão Pereira§, Marlieria§; *Mato Grosso* – Maracaju§.

231. **Lutzomyia pelloni** (Sherlock & Alencar)

Phlebotomus pelloni Sherlock & Alencar, 1959 – *Revista Brasileira de Biologia*, 19: 119-121 (M*).

Lutzomyia (Trichopygomyia) pelloni Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 314 (M*).

BRAZIL: Bahia – Poções; *?Espírito Santo* – Aracruz§, Linhares§, Mimoso do Sul§; *?Rio de Janeiro* – Caxias§, Ibicuí§, Itacurussá§, Magé§, Nova Iguaçu§; *?São Paulo* – Apiaí§, Caraguatatuba§, São Sebastião§; *?Minas Gerais* – Teófilo Otoni§.

Group AMARALI

(Figs. 140-143, Map XXV)

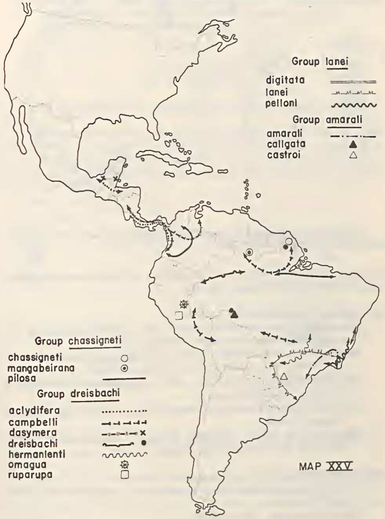
The species included here are only provisionally grouped together, definition of the group resting on similarities of male characteristics. During the preparation of the present work, we obtained evidence that *L. diacantha* Martins & Silva is the male of *L. amarali* (Barretto & Coutinho); details will be published separately.

Fifth palpal segment a little longer than the combined lengths of segments 3 and 4.

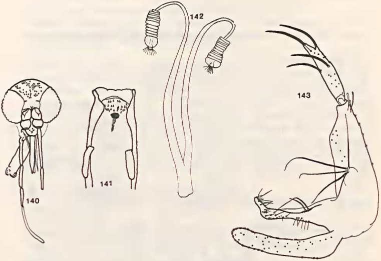
Cibarium of the only known female very variable, with small horizontal teeth arranged irregularly, vertical teeth minute or lacking; pigment patch pale; cibarial arch complete. Body of the spermatheca annulated, with a capsulated terminal segment; junction between the spermatheca and the individual duct well-defined; individual spermathecal duct long and narrow; common duct short.

Dististyle of the male with four well-developed spines and a subterminal seta. The middle of the inner surface of the basistyle with a tuft of 6-8 setae. Paramere with

The lanei, amarali, chassigneti & dreisbachi groups


Group lanei
digitata
lanei
pelloni
Group amarali
amarali
caligata ▲
castroi △
Group chassigneti
chassigneti ○
mangabeirana ⊙
pilosa
Group dreisbachi
aclydifera
campbelli
dasymera ×
dreisbachi ●
hermanlenti
omagua
ruparupa ☐

MAP XXV



Figs. 140-143. Group *amarali. L. amarali*: female – head (140), cibarium (141), spermathecae and ducts (142); male – genitalia (143).

one or two strong setae implanted near the middle of the dorsal surface; tip of the paramere inflected upwards. Aedeagus very long.

232. **Lutzomyia amarali** (Barretto & Coutinho)

Phlebotomus amarali Barretto & Coutinho, 1940 – *Anais da Faculdade de Medicina da Universidade de São Paulo*, **16**: 134-136 (F*).

Brumptomyia amarali Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: Forattini, 1973 – "Entomologia Médica, 4º Volume": 523 (F*).

Lutzomyia diacantha Martins & Silva, 1965 – *Revista Brasileira de Biologia*, **25**: 273-275 (M*). (New synonymy).

Lutzomyia (*Lutzomyia*) *diacantha* Forattini, 1973 – "Entomologia Médica, 4º Volume": 254 (M*).

BRAZIL: *Rio de Janeiro* – Petrópolis; *São Paulo* – São Paulo; *Minas Gerais* – Belo Vale§, Caratinga§, Peçanha§, Sabará§.

233. **Lutzomyia caligata** Martins, Falcão & Silva

Lutzomyia caligata Martins, Falcão & Silva, 1965 – *Revista Brasileira de Biologia*, **25**: 7-9 (M*).

BRAZIL: *Rondônia* – Guajará Mirim§.

234. **Lutzomyia castroi** (Barretto & Coutinho)

Phlebotomus castroi Barretto & Coutinho, 1941 – *Papéis Avulsos do Departamento de Zoologia, Secretaria da Agricultura, São Paulo,* **1**: 181-183 (M*).

Flebotomus (*Castromyia*) *castroi* Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* **37**: 185 (designated as the type species of the subgenus, of the genus *Phlebotomus, Castromyia* Mangabeira; M in key).

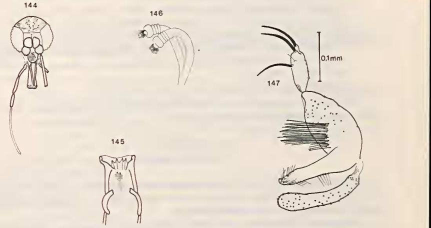
BRAZIL: *São Paulo* – Itaporanga.

Group CHASSIGNETI

(Figs. 144-147, Map XXV)

Fifth palpal segment very long, greater than the combined lengths of segments 3 and 4.

Cibarium of the female with 4-5 horizontal teeth with the appearance of a comb; only two vertical teeth; pigment patch poorly defined; cibarial arch incomplete. Body of the spermatheca incompletely annulated but with a well-marked spherical terminal segment; individual spermathecal duct as wide as the body of the spermatheca; common duct lacking.



Figs. 144-147. Group *chassigneti*. *L. mangabeirana*: female – head (144), cibarium (145), spermathecae and ducts (146); male – genitalia (147).

Dististyle of the male with three well-developed spines, a reduced (hair-like) spine near the basal large spine, and without a subterminal seta. Basistyle with or without an inner tuft of hairs; when present, the tuft is distal or medial. Paramere and lateral lobe simple.

235. **Lutzomyia chassigneti** (Floch & Abonnenc)

Phlebotomus chassigneti Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication N° 80: 3-5, 16 (M*, F*).

Lutzomyia (*Micropygomyia*) *chassigneti* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 101. Forattini, 1973 – "Entomologia Médica, 4° Volume": 339 (M*, F*).

FRENCH GUYANA: *Cayenne* – Baduel, Cabassou.

236. **Lutzomyia mangabeirana** Martins, Falcão & Silva

Lutzomyia mangabeirana Martins, Falcão & Silva, 1963 – *Revista Brasileira de Biologia,* 23: 342-345 (M*, F*).

Lutzomyia (*Micropygomyia*) *mangabeirana* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 101. Forattini, 1973 – "Entomologia Médica, 4° Volume": 343 (M*, F*).

BRAZIL: *Roraima* – Boa Vista§.

237. **Lutzomyia pilosa** (Damasceno & Causey)

Flebotomus pilosus Damasceno & Causey, 1944 – *Memórias do Instituto Oswaldo Cruz,* 41: 342-344, Plates II, V (M*).

Lutzomyia (*Micropygomyia*) *pilosa* Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 101. Forattini, 1973 – "Entomologia Médica, 4° Volume": 343 (M*).

COSTA RICA: Limon (Wauchope).

COLOMBIA: *Bolivar* – Simití; *Boyacá* – Puerto Boyacá; *Caquetá* – Florencia; *Huila* – Baraya, La Plata, Pitalito; *Norte de Santander* – Cúcuta, Tibú; *Tolima* – Melgar, Purificación.

TRINIDAD: Bush Bush Forest.

BRAZIL: *Amazonas*§; *Pará* – Belém, Irituia, João Coelho, Monte Alegre, Santarém; *Maranhão* – São Luiz§, Turiaçu§.

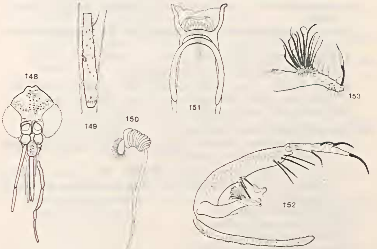
Group DREISBACHI

(Figs. 148-153, Map XXV)

Fifth palpal segment short, shorter than or about equal to the combined lengths of segments 3 and 4. Ascoids bigeniculate, with the posterior prolongation extending to or beyond the base of the antennal segment.

Cibarium of the female with 10-20 horizontal teeth (sometimes with fewer teeth) and many vertical teeth; pigment patch well-defined; cibarial arch complete. Body of the spermatheca annulated or with smooth walls; individual spermathecal duct long and narrow; with or without a common duct.

Dististyle of the male with four well-developed spines, and lacking a subterminal seta. Basistyle with or without an inner basal tuft, sometimes with a dorsal group of spine-like setae. Paramere bifurcated, or with one or more arms or dorsal lobes. Distal end of the lateral lobe sometimes armed with spine-like setae on the dorsal surface.



Figs. 148-153. Group *dreisbachi. L. aclydifera*: female – head (148), 4th antennal segment (149), cibarium (150), spermatheca and ducts (151); male – genitalia (152), distal end of paramere (153).

238. **Lutzomyia aclydifera** (Fairchild & Hertig)

Phlebotomus aclydiferus Fairchild & Hertig, 1952 – *Annals of the Entomological Society of America,* 45: 511, 513, 521 (M*, F*).
Psychodopygus (*Trichophoromyia*) *aclydiferus* Forattini, 1971 – *Papéis Avulsos de Zoologia,* **24**: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 452-454 (M*, F*, P, L*).
MEXICO: *Chiapas* – Santa Maria Cintalapa.
HONDURAS: Tela.
COSTA RICA: Guápiles, Jimenez de Guápiles, Pacuare, Suerre de Guápiles, Turrialba.
PANAMA: *Bocas del Toro* – Almirante, Finca Nievecita; *Chiriqui* – Puerto Armueles; *Colón* – Puerto Pilon; *Panama* – Cerro Campana, Cerro Jefe, Pacora, San Antonio; *Canal Zone* – Cruces Trail, Fort San Lorenzo, Juan Mina, Limbo Field Station, Madden Lake, Mojinga.
COLOMBIA: *Valle* – Lower Achicaya Dam, Rio Raposo.

239. **Lutzomyia campbelli** (Damasceno, Causey & Arouck)

Flebotomus campbelli Damasceno, Causey & Arouck, 1945 – *Memórias do Instituto Oswaldo Cruz,* 43: 26-29 (M*).

Lutzomyia (*Trichopygomyia*) *campbelli* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 303 (M*).

Lutzomyia campbelli Martins, Llanos & Silva, 1975 – *Revista Brasileira de Biologia*, 35: 655-657 (F*).

FRENCH GUYANA: Tonate.

PERU: *Cuzco* – Echarate§, La Quebrada, Quellouno§.

BRAZIL: *Roraima* – Boa Vista§, Caracaraí§; *Acre* – Cruzeiro do Sul§; *Pará* – Monte Alegre; *Goiás* – Itumbiara§; *Mato Grosso* – Rosário d'Oeste§.

BOLIVIA: *La Paz* – Los Yungas.

240. **Lutzomyia dasymera** (Fairchild & Hertig)

Phlebotomus dasymerus Fairchild & Hertig, 1961 – *Annals of the Entomological Society of America*, 54: 242 (M*, F*).

Lutzomyia (*Trichopygomyia*) *dasymera* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 102. Forattini, 1973 – "Entomologia Médica, 4º Volume": 305 (M*, F*, L*).

MEXICO: *Chiapas* – Palenque.

BELIZE: Gallon Jug§, Millionario§.

NICARAGUA: Villa Somoza.

COSTA RICA: Guapiles, San Carlos.

PANAMA: *Bocas del Toro* – Almirante; *Panama* – Arraijan, La Joya, Pacora, Rio Corutu, Rio Maje, Tocumen; *Canal Zone* – Camp Pina, Juan Mina, Loma Borracha, Madden Dam, Mind Dairy, Mojinga Swamp.

COLOMBIA: *Boyacá* – Puerto Boyacá; *Valle* – Rio Raposo.

VENEZUELA: *Zulia* – Valmore Rodriguez (Zipayare).

241. **Lutzomyia dreisbachi** (Causey & Damasceno)

Flebotomus dreisbachi Causey & Damasceno, 1945 – *Memórias do Instituto Oswaldo Cruz*, 42: 649-653 (M*).

Phlebotomus driesbachi (*sic*) Floch & Abonnenc, 1951 – *Annales de Parasitologie Humaine et Comparée*, 26: 103 (F in key), 113 (F*). Floch & Abonnenc, 1952 – "Faune de l'Union française, XIV. Diptères Phlébotomes de la Guyane et des Antilles françaises": 25, 32, 44, 51-57, 85-88 (M*, F*).

Psychodopygus (*Trichophoromyia*) *dreisbachi* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 105. Forattini, 1973 – "Entomologia Médica, 4º Volume": 463 (M*, F*).

Phlebotomus sp. de Crique Anguille, Floch & Abonnenc, 1945 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication Nº 106: 7-9, 15-16 (M*, F*).

COLOMBIA: *Amazonas* – Letícia.

FRENCH GUYANA: *Cayenne* – Crique Anguille.

BRAZIL: *Amazonas* – Coari, Fonte Boa, Manacapuru; *Rondônia* – Guajará Mirim§.

SciELO

242. **Lutzomyia hermanlenti** Martins, Silva & Falcão

Lutzomyia hermanlenti Martins, Silva & Falcão, 1970 – *Revista Brasileira de Biologia*, **30**: 547-550 (M*, F*).

Psychodopygus (Trichophoromyia) hermanlenti Forattini, 1973 – "Entomologia Médica, 4º Volume": 468 (M*, F*).

BRAZIL: *Mato Grosso* – Camapuan; *Minas Gerais* – Arinos§; *Goiás* – Itumbiara§.

243. **Lutzomyia omagua** Martins, Llanos & Silva

Lutzomyia omagua Martins, Llanos & Silva, 1976 – *Revista Brasileira de Biologia*, **36**: 496-497 (M*).

PERU: Loreto – Pucallpa (Ivita)§.

244. **Lutzomyia ruparupa** Martins, Llanos & Silva

Lutzomyia ruparupa Martins, Llanos & Silva, 1976 – *Revista Brasileira de Biologia*, **36**: 491-493 (M*).

PERU: Huánuco – Cachicoto§.

Group DELPOZOI

(Figs. 154-157, Map XXVI)

Fifth palpal segment long, greater than the combined lengths of segments 3 and 4.

Cibarium of the female with two modified horizontal teeth, two groups of vertical teeth, and many lateral teeth; pigment patch small; cibarial arch complete. Body of the spermatheca vesicular with a long "head"; individual spermathecal duct short; common duct lacking.

Dististyle of the male with four well-developed spines and a subterminal seta. Basistyle with six upwardly-curving fine setae arising from a well-defined tubercle. Tip of the paramere pointed, with or without fine hairs.

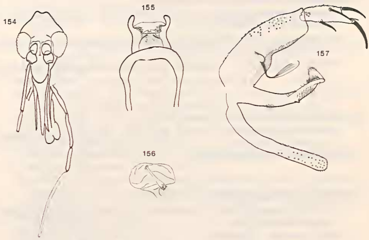
245. **Lutzomyia delpozoi** (Vargas & Díaz Nájera)

Phlebotomus Del-Pozoi Vargas & Díaz Nájera, 1953 – *Revista del Instituto de Salubridad y Enfermedades Tropicales*, **13**: 42-44 (M*, F*).

Pressatia delpozoi Forattini, 1971 – *Papéis Avulsos de Zoologia*, **24**: 106. Forattini, 1973 – "Entomologia Médica, 4º Volume": 515 (M*, F*).

MEXICO: Chiapas – Mariscal (Finca El Vergel).

BELIZE: Millionario§.



Figs. 154-157. Group *delpozoi. L. inusitata:* female – head (154), cibarium (155); male – genitalia (157) (based on Fairchild & Hertig, 1961). *L. delpozoi*: female – spermatheca (156) (after Vargas & Díaz Nájera, 1954).

246. **Lutzomyia inusitata** (Fairchild & Hertig)

Phlebotomus inusitatus Fairchild & Hertig, 1961 – *Proceedings of the Entomological Society of Washington,* **63**: 22-24 (M*, F*).

Pressatia inusitata Forattini, 1971 – *Papéis Avulsos de Zoologia,* **24**: 107. Forattini, 1973 – "Entomologia Médica, 4º Volume": 517 (M*, F*).

MEXICO: Chiapas – Ocococautla.

Group *GORBITZI*

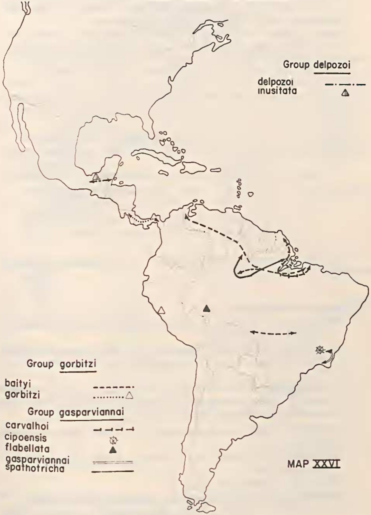
(Figs. 158-161, Map XXVI)

Fifth palpal segment very long, approximately equal to the combined lengths of segments 2, 3 and 4.

The cibarium of the female with four horizontal teeth and 2-3 rows of vertical teeth; pigment patch well-defined; cibarial arch more or less complete. Body of the spermatheca in the form of a short cylinder with smooth walls; individual duct very short; common duct very short or absent.

Dististyle of the male with a subterminal seta and four short, thick spines arising in the distal third. Basistyle with an inner basal tuft composed of many short hairs and a few long hairs; distal part of the basistyle with 5-7 curved spines. Dorsal surface of the paramere convexly curved. Genital filaments very short.

The delpozoi, gorbitzi & gasparviannai groups


Group delpozoi
delpozoi
inusitata
Group gorbitzi
baityi
gorbitzi
Group gasparviannai
carvalhoi
cipoensis
flabellata
gasparviannai
spathotricha

MAP XXVI

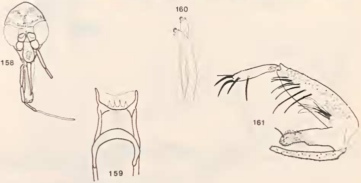
247. **Lutzomyia baityi** (Damasceno, Causey & Arouck)

Flebotomus baityi Damasceno, Causey & Arouck, 1945 – *Memórias do Instituto Oswaldo Cruz,* 43: 22-25 (M*).

Lutzomyia (Coromyia) baityi Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 101. Forattini, 1973 – "Entomologia Médica, 4º Volume": 281, 283 (M*).

VENEZUELA: Zulia – Valmore Rodriguez (Zipayare).

BRAZIL: Roraima – Boa Vista§; *Amazonas* – Careiro§; *Pará* – Belém, Irituia, Peixe Boi, Santarém; *Mato Grosso* – Barra do Bugres§; *Goiás* – Itumbiara§.



Figs. 158-161. Group *gorbitzi. L. baityi*: ? female – head (158), cibarium (159), spermathecae and ducts (160), male – genitalia (161).

248. **Lutzomyia gorbitzi** (Blancas)

Phlebotomus gorbitzi Blancas, 1959/60 – *Revista de Medicina Experimental,* 13: 125-217, 131, 133 (M*, F*).

Lutzomyia (Coromyia) gorbitzi Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 101. Forattini, 1973 – "Entomologia Médica, 4º Volume": 286-287 (M*, F*, L).

Phlebotomus hansoni Fairchild & Hertig, 1961 – *Annals of the Entomological Society of America,* 54: 244 (M*, F*). Christensen & Rutledge, 1973 – *Journal of Medical Entomology,* 10: 314 (synonymy).

Lutzomyia (Coromyia) hansoni Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 101.

Phlebotomus sp. M, Hanson, 1961 – *Annals of the Entomological Society of America,* 54: 320.

COSTA RICA: Guápiles, San Carlos.

PANAMA: Bocas del Toro – Almirante, Changuinola District; *Chiriquí* – Rio Corutu (Puerto Armuelles); *Colon* – Cacique; *Panama* – Chorreras; *Veraguas*

– El Maria; *Canal Zone* – Barro Colorado Island, Chiva Chiva Road, Cruces Trail, Fort Davis, Juan Mina, Loma Borracha.

PERU: Ancash – Cañon del Pato, Gilbraltar, Huallanca, Jipatocana, Rio Huaylas.

Group GASPARVIANNAI

(Figs. 162-165, Map XXVI)

Fifth palpal segment long, longer than the combined lengths of segments 3 and 4.

The females of only two species are presently known. The cibarium has two horizontal teeth (very large in one species) and several rows of small vertical teeth; pigment patch well-defined; cibarial arch complete. Body of the spermatheca annulated, with the distal segment larger than the others; individual duct short; common duct long.

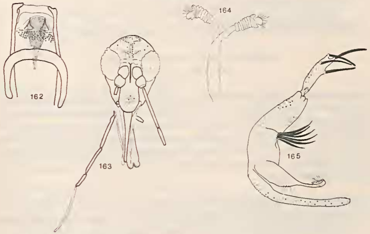
Dististyle of the male with four well-developed spines; subterminal seta lacking. Basistyle with an inner basal tuft of hairs arising from a large, somewhat fleshy, tubercle.

249. **Lutzomyia carvalhoi** (Damasceno, Causey & Arouck)

Flebotomus carvalhoi Damasceno, Causey & Arouck, 1945 – *Memórias do Instituto Oswaldo Cruz,* **43**: 8-11 (M*).

FRENCH GUYANA: Dégrad-Bally (Rivière Ouaqui).

BRAZIL: Amapá – Macapá; *Pará* – Belém, Irituia, João Coelho.



Figs. 162-165. Group *gasparviannai. L. gasparviannai:* female – cibarium (162), head (163), spermathecae and ducts (164); male – genitalia (165).

250. **Lutzomyia cipoensis** Martins, Falcão & Silva

Lutzomyia cipoensis Martins, Falcão & Silva, 1964 – *Revista Brasileira de Biologia,* 24: 312-315 (M*). Martins, Falcão & Silva, 1975 – *Revista Brasileira de Biologia,* 35: 297-298 (F*).

Lutzomyia (Lutzomyia) cipoensis Forattini, 1973 – "Entomologia Médica, 4º Volume": 252 (M*).

BRAZIL: Minas Gerais – Santana do Riacho (Serra do Cipó)§.

251. **Lutzomyia flabellata** Martins & Silva

Lutzomyia flabellata Martins & Silva, 1964 – *Revista Brasileira de Biologia,* 24: 133-136 (M*).

BRAZIL: Acre – Rio Branco§.

252. **Lutzomyia gasparviannai** Martins, Godoy & Silva

Lutzomyia gasparviannai Martins, Godoy & Silva, 1962 – *Revista do Instituto de Medicina Tropical de São Paulo,* 4: 86-89 (M*, F*).

Lutzomyia (Lutzomyia) gasparviannai Forattini, 1971 – *Papéis Avulsos de Zoologia,* 24: 99. Forattini, 1973 – "Entomologia Médica, 4º Volume": 255, 257 (M*, F*).

BRAZIL: Bahia – Ubaíra§, Wenceslau Guimarães§; *Espírito Santo* – Santa Leopoldina§; *Minas Gerais* – Caratinga§; *Rio de Janeiro* – Nova Iguaçu§.

253. **Lutzomyia spathotricha** Martins, Falcão & Silva

Lutzomyia spathotricha Martins, Falcão & Silva, 1963 – *Revista Brasileira de Biologia,* 23: 340-341 (M*).

BRAZIL: Amapá – Macapá§; *Amazonas* – Manaus§; *Roraima* – Caracaraí§.

ABERRANT AND ISOLATED SPECIES

(Maps XXVII & XXVIII)

Some of the species included here are presently known from one sex only. When the opposite sex becomes known, it may be possible to place several species in a subgenus or species group. Other species, known only from the type material, could be abnormal forms of an already recognized species. Yet other species are known from both sexes but cannot be placed in any of the subgenera or groups. These probably evolved in isolation, along lines independent from the main evolutionary stream of American Phlebotominae.

254. **Lutzomyia acanthopharynx** Martins, Falcão & Silva

Lutzomyia acanthopharynx Martins, Falcão & Silva, 1962 – *Revista Brasileira de Malariologia e Doenças Tropicais,* 14: 387-390, 398, 399 (M*, F*).

Lutzomyia (Trichopygomyia) acanthopharynx Forattini, 1973 – "Entomologia Médica, 4º Volume": 300 (M*, F*).

BRAZIL: Minas Gerais – Paracatu§, Unaí§; *Goiás* – Amaro Leite§, Formoso§, Itumbiara§, Paraúna§; *Mato Grosso* – Aquidauana§, Camapuan, Diamantino§.

255. **Lutzomyia alphabetica** (Fonseca)

Flebotomus alphabeticus Fonseca, 1936 – *Revista de Entomologia*, 6: 327 (F*).

Phlebotomus alphabeticus Coutinho & Barretto, 1940 – *Anais da Faculdade de Medicina de São Paulo*, 16: 193-196 (M*, F). Barretto, 1941 – *Anais da Faculdade de Medicina da Universidade de São Paulo*, 17: 398-402, Plates I, XXIX-XXXII, LI (P*, L*, E*).

Lutzomyia (Trichopygomyia) alphabetica Forattini, 1973 – "Entomologia Médica, 4º Volume": 300, 302 (M*, F*, P, L*).

BRAZIL: São Paulo – Juqueri, Mairiporã§, Mogi das Cruzes, Perus, Santo Amaro, São Paulo; *Paraná* – Capanema§; *Santa Catarina* – São Miguel d'Oeste§.

ARGENTINA: Misiones – Cerro Azul.

256. **Lutzomyia baculus** Martins, Falcão & Silva

Lutzomyia baculus Martins, Falcão & Silva, 1965 – *Revista Brasileira de Biologia*, 25: 10-12 (M*).

Lutzomyia bacula Forattini, 1973 – "Entomologia Médica, 4º Volume": 349 (M*).

BRAZIL: Rondônia – Guajará Mirim§; *Goiás* – Itumbiara§.

257. **Lutzomyia boliviana** Velasco & Trapido

Lutzomyia boliviana Velasco & Trapido, 1974 – *Journal of Medical Entomology*, 11: 433 (M*, F*).

BOLIVIA: La Paz – Los Yungas.

258. **Lutzomyia botella** (Fairchild & Hertig)

Phlebotomus botellus Fairchild & Hertig, 1961 – *Annals of the Entomological Society of America*, 54: 250 (F*).

Psychodopygus (Trichophoromyia) botellus Forattini, 1973 – "Entomologia Médica, 4º Volume": 459 (F*).

PANAMA: Chiriqui – El Volcan, Palo Santo.

259. **Lutzomyia bursiformis** (Floch & Abonnenc)

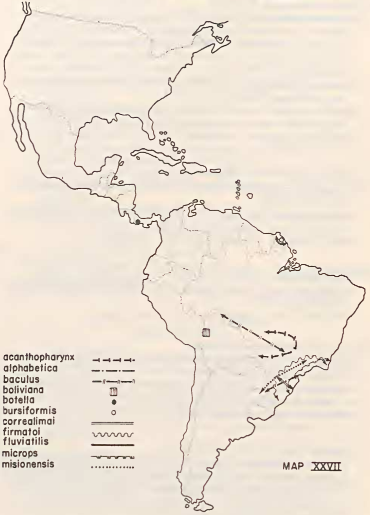
Phlebotomus bursiformis Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini*, Publication No. 83: 5-6, 10 (F*).

Lutzomyia (Lutzomyia) bursiformis Forattini, 1973 – "Entomologia Médica, 4º Volume": 251 (F*).

FRENCH GUYANA: Cayenne – Baduel.

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

Isolated species of the genus LUTZOMYIA (in part)



acanthopharynx
alphabetica
baculus
boliviana
botella
bursiformis
correalimai
firmatoi
fluviatilis
microps
misionensis

MAP XXVII

260. Lutzomyia correalimai Martins, Coutinho & Luz

Lutzomyia correalimai Martins, Coutinho & Luz, 1970 – *Revista Brasileira de Malariologia e Doenças Tropicais,* 22: 189-193, 195-200 (M*, F*).

Lutzomyia (Coromyia) correalimai Forattini, 1973 – "Entomologia Médica, 4º Volume": 283, 289 (M*, F*).

BRAZIL: Paraná – Borrazópolis§, Curitiba§, Marumbi (Água do Caloré)§; *São Paulo* – Taquarituba.

261. Lutzomyia firmatoi (Barretto, Martins & Pellegrino)

Sergentomyia firmatoi Barretto, Martins & Pellegrino, 1956 – *Folia Clinica et Biologica,* 26: 50-51, 76 (M*).

Lutzomyia (Lutzomyia) firmatoi Forattini, 1973 – "Entomologia Médica, 4º Volume": 255 (M*).

Lutzomyia firmatoi Martins, Falcão & Silva, 1975 – *Revista Brasileira de Biologia,* 35: 262 (F*).

BRAZIL: Rio de Janeiro – Nova Iguaçu§, São Pedro d'Aldeia§; *São Paulo* – Capão Bonito§, São Sebastião§; *Paraná* – Santo Antônio§; *Santa Catarina* – São Miguel do Oeste§; *Minas Gerais* – Alfenas§, Aimorés§, Arcos§, Bambuí§, Belo Horizonte§, Caeté§, Campestre§, Caratinga§, Conselheiro Pena§, Galiléia§, Itambacuri§, Lagoa Santa§, Mantena§, Nova Lima§, Pains§, Peçanha§, Pedro Leopoldo§, Pratápolis§, Sabará§, São João do Oriente§, Tarumirim§.

262. Lutzomyia fluviatilis (Floch & Abonnenc)

Phlebotomus fluviatilis Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication No. 80 : 7-8, 18 (M*). Floch & Abonnenc, 1944 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication No. 83 : 1-2, 8 (F*). (The sexes, collected in different localities, might have been incorrectly associated).

Psychodopygus (Trichophoromyia) fluviatilis Forattini, 1973 – "Entomologia Médica, 4º Volume": 466 (M*, F*).

FRENCH GUYANA: Approuague – Guillaume, Machicou; *Cayenne* – Crique Anguille; *Haute Mana* – Souvenir; *Oyapock* – Maripa.

263. Lutzomyia microps (Mangabeira)

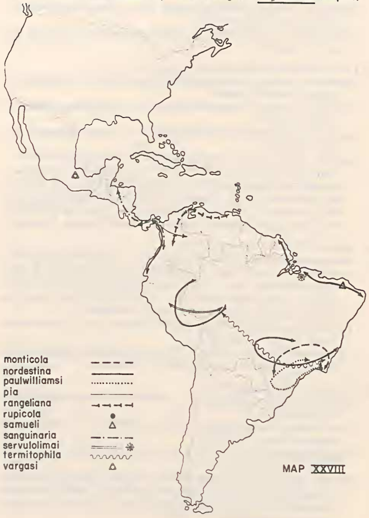
Flebotomus microps Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* 37: 169-172 (M*).

Psychodopygus (Trichophoromyia) microps Forattini, 1973 – "Entomologia Médica, 4º Volume": 474 (M*).

Lutzomyia microps Martins, Falcão & Silva, 1975 – *Revista Brasileira de Biologia,* 35: 260-261 (F*).

BRAZIL: Pará – Belém (?); *Espírito Santo* – Araçatiba§, Viana§; *Rio de Janeiro* – Mangaratiba§, Nova Iguaçu§, Petrópolis§; *São Paulo* – São Sebastião§; *Santa Catarina* – Blumenau§, Brusque§; *Minas Gerais* – Caratinga§, Nova Lima§, Ouro Preto§, Sabará§; *Bahia* – Ubaíra§.

Isolated species of the genus LUTZOMYIA (in part)


monticola
nordestina
paulwilliamsi
pia
rangeliana
rupicola ●
samueli △
sanguinaria
servulolimai
termitophila
vargasi △

MAP XXVIII

264. **Lutzomyia misionensis** (Castro)

Flebotomus misionensis Castro, 1960 – *Primeras Jornadas Entomoepidemiologicas Argentinas,* 1: 331-332 (F*).

Flebotomus sp. Bejarano & Duret, 1950 – *Revista de la Sanidad Militar Argentina,* 49: 330.

Lutzomyia coelhoi Coelho, Falcão & Falcão, 1967 – *Revista do Instituto de Medicina Tropical de São Paulo,* 9: 179, 182, 185, 187 (*nomen nudum*).

BRAZIL: *Minas Gerais* – Belo Horizonte§, Belo Vale§, Betim§, Caeté§, Contagem§, Nova Lima§, Ouro Preto§, Sabará§.

ARGENTINA: *Misiones* – Campo Grande, Cerro Azul, Eldorado, Los Helechos, Mojón Grande, Santa Ana, Santo Pipó.

265. **Lutzomyia monticola** (Costa Lima)

Phlebotomus monticolus Costa Lima, 1932 – *Memórias do Instituto Oswaldo Cruz,* 26: 50-51 (F*). Barretto, 1941 – *Anais da Faculdade de Medicina da Universidade de São Paulo,* 17: 389-393, Plates I, XXI-XXIV, LII (P*, L*, E*).

Flebotomus monticolus Antunes & Coutinho, 1939 – *Boletim Biologico,* 4 (N.S.): 451, 453 (M*).

Psychodopygus (*Trichophoromyia*) *monticolus* Forattini, 1973 – "Entomologia Médica, 4º Volume": 474-475 (M*, F*, P*, L*).

BRAZIL: *Rio de Janeiro* – Petrópolis, Rezende (Itatiaia); *São Paulo* – Itaporanga, Jundiaí, Mogi das Cruzes, Palmeiras, Perus, Pindamonhangaba, Ribeirão Preto, Rocinha, Salesópolis, São José dos Campos, São José do Rio Pardo, São Paulo, Serra da Bocaina (Bananal ?); *Paraná* – Salto do Itararé (?); *Minas Gerais* – Belo Horizonte§, Carmo da Cachoeira§, Contagem§, Dom Joaquim§, Itanhandu§, Nova Lima§, Oliveira§, Pitangui§, São João Evangelista§, Uberaba§, Virginópolis§; *Goiás* – Sítio d'Abadia§; *Mato Grosso* – Nova Andradina.

ARGENTINA: *Misiones* – Arroyo Los Toros, Bernardo de Irigoyen, Cerro Azul, Deseado, Dos de Mayo, El Soberbio, Iguazú-Cué, Los Helechos, Monte Carlo, Panambi, Puerto Rosario.

266. **Lutzomyia nordestina** (Mangabeira)

Flebotomus nordestinus Mangabeira, 1942 – *Memórias do Instituto Oswaldo Cruz,* 37: 327-330 (M*).

Psychodopygus (*Trichophoromyia*) *nordestinus* Forattini, 1973 – "Entomologia Médica, 4º Volume": 475 (M*, F*).

Phlebotomus longicornutus Floch & Abonnenc, 1943 – *Institut Pasteur de la Guyane française et du Territoire de l'Inini,* Publication Nº 61: 6-9 (M*, F*).

PANAMA: *Darien* – Altos de Quia (Pinogana District); *Canal Zone* – Madden Forest Reserve.

COLOMBIA: *Amazonas* – Letícia; *Boyacá* – Puerto Boyacá; *Caquetá* – Solano; *Tolima* – Melgar; *Valle* – Buenaventura, Lower Anchicaya Dam.

FRENCH GUYANA: *Approuague* – Balourou, Guillaume, Saut Canori, Saut Machicou; *Caux; Cayenne* – Baduel, Cabossou, Crique Anguille, Montabo, Rorota; *Haute Mana* – Souvenir; *Iracoubo* – Crique Blanche; *Oyapock* – Maripa, Saint Georges, Tampac.

ECUADOR: *Cañar* – Cochancay; *Guayas* – Bucay (Cerro Cutuguay); *Los Rios* – Quevedo (La Montaña).

PERU: *Cuzco* – Assunción (Pilcopata); *Huánuco* – Cachicoto; *Loreto* – Pucallpa§, Serafin Filomeno, Zungarococha; *Madre de Dios* – Salvación (Alto Madre de Dios)§.

BRAZIL: *Amapá* – Macapá; *Acre* – Rio Branco§; *Rondônia* – Guajará Mirim§, Porto Velho§; *Pará* – Belém; *Maranhão* – Cururupu§, São Luiz§, Viana§; *Ceará* – Santanople (Nova Olinda); *Pernambuco* – Recife§; *Minas Gerais* – Arceburgo, Bambuí§, Belo Horizonte§, Caratinga§, Jequitinhonha§, Lagoa Santa§, Marlieria§, Monsenhor Paulo§, Ouro Preto§, Paracatu§, Pedro Leopoldo§, Santana do Riacho§, Tupaciguara§, *Goiás* – Itapaci§, Itumbiara§; *Mato Grosso* – Aquidauana§, Camapuan§, Diamantino§, Mato Grosso§.

267. **Lutzomyia paulwilliamsi** Martins, Falcão & Silva

Lutzomyia paulwilliamsi Martins, Falcão & Silva, 1977 – *Revista Brasileira de Biologia*, 37: 135-137 (M*). (F known but not yet described).

BRAZIL: *Bahia* – Ubaíra§, Wenceslau Guimarães; *Rio de Janeiro* – Rezende§, Vassouras§; *São Paulo* – Apiaí§, Bananal§, Capão Bonito§; *Paraná* – Capanema§, Foz do Iguaçu§; *Santa Catarina* – Joinville§, Rio Negrinho§; *Minas Gerais* – Alfenas§, Arcos§, Bambuí§, Belo Horizonte§, Caeté§, Caratinga§, Cassia§, Curvelo§, Divinópolis§, Lagoa Santa§, Mateus Leme§, Oliveira§, Patos de Minas§, Patrocínio§, Peçanha§, Pedro Leopoldo§, Perdões§, Sabará§, Santo Antônio do Amparo§, São Sebastião do Paraíso§; *Mato Grosso* – Dourados§, Maracaju§; *Espírito Santo* – Viana§.

268. **Lutzomyia pia** (Fairchild & Hertig)

Phlebotomus pius Fairchild & Hertig, 1961 – *Annals of the Entomological Society of America*, 54: 248 (M*, F*).

Lutzomyia (*Trichopygomyia*) *pia* Forattini, 1973 – "Entomologia Médica, 4° Volume": 316-317 (M*, F*).

PANAMA: *Chiriqui* – El Hato, El Volcan, Lagunas del Volcan, Palo Santo, Rio Candela, Santa Clara. .

COLOMBIA: *Boyacá* – Almeida.

269. **Lutzomyia rangeliana** (Ortiz)

Phlebotomus rangelianus Ortiz, 1953 – *Revista de Sanidad y Asistencia Social*, 17: 153-155 (M*). Pifano, Ortiz & Alvarez, 1962 – *Archivos Venezolanos de Medicina Tropical y Parasitologia Medica*, 4: 384, 389, 406-407, 419-421, 424, 426 (M*, F*).

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

Lutzomyia (*Coromyia*) *rangeliana* Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 101.

Lutzomyia (*Trichopygomyia*) *rangeliana* Forattini, 1973 – "Entomologia Médica, 4º Volume": 317-318 (M*, F*).

COLOMBIA: *Bolivar* – Mompós; *Magdalena* – Santa Marta; *Tolima* – Melgar.

VENEZUELA: *Lara* – Duaca; *Nueva Esparta* – Isla de Margarita; *Sucre* – Montes (Cumanacoa).

270. **Lutzomyia rupicola** Martins, Godoy & Silva

Lutzomyia rupicola Martins, Godoy & Silva, 1962 – *Revista Brasileira de Biologia*, 22: 57-59 (M*).

Lutzomyia (*Coromyia*) *rupicola* Forattini, 1973 – "Entomologia Médica, 4º Volume": 288-289 (M*).

BRAZIL: *Rio de Janeiro* – Petrópolis§.

L. correalimai (*quod vide*) could be a geographical variant of *L. rupicola*; the question cannot be resolved until the female of *L. rupicola* is discovered. If it is eventually shown that they are separate species, *L. correalimai* and *L. rupicola* would form a species group.

271. **Lutzomyia samueli** (Deane)

Phlebotomus samueli Deane, 1955 – *Revista do Hospital das Clinicas*, **10**: 251-253 (M*).

Lutzomyia (*Dampfomyia*) *samueli* Forattini, 1973 – "Entomologia Médica, 4º Volume": 332 (M*).

BRAZIL: *Ceará* – Massapé, Sobral, Tianguá, Viçosa do Ceará.

272. **Lutzomyia sanguinaria** (Fairchild & Hertig)

Phlebotomus sanguinarius Fairchild & Hertig, 1957 – *Annals of the Entomological Society of America*, **50**: 325, 326, 332, 333 (M*, F*).

Psychodopygus (*Trichophoromyia*) *sanguinarius* Forattini, 1973 – "Entomologia Médica, 4º Volume": 267 (M*, F*).

HONDURAS: Tela (Lancetilla Valley).

COSTA RICA: San Miguel, Turrialba.

PANAMA: *Bocas del Toro* – Almirante, Chiriqui Point, Robalo, Rio Changuena; *Chiriqui* – Palo Santo; *Cocle* – El Valle; *Colon* – Cacique, Quebrada Bonita, Rio del Medio, La Zumbadora; *Darien* – Altos de Quia (Pinogana District); *Panama* – Cerro Campana, Cerro Jefe, Santa Rita; *Veraguas* – Santa Fé; *Canal Zone* – Ceiba Island, Cruces Trail, Gatuncillo, Juan Mina, Limbo Field Station, Mojinga Swamp, Rio Puente.

COLOMBIA: *Valle* – Lower Anchicaya Dam.

273. **Lutzomyia servulolimai** (Damasceno & Causey)

Flebotomus servulolimai Damasceno & Causey, 1945 – *Memórias do Instituto Oswaldo Cruz*, **42**: 635-638 (M*).

SciELO

PERU: *Loreto* – Zungarococha (Maynas).

BRAZIL: *Rondônia* – Guajará Mirim§, Porto Velho§; *Pará* – Belém, São Domingos do Capim.

274. **Lutzomyia termitophila** Martins, Falcão & Silva

Lutzomyia termitophila Martins, Falcão & Silva, 1964 – *Revista Brasileira de Biologia*, 24: 309-311 (M*). (F known, description *in the press*).

BRAZIL: *Rondônia* – Guajará Mirim§; *Minas Gerais* – Belo Horizonte§, Caratinga§, Itanhomi§, João Pinheiro§, Lagoa Santa§, Tarumirim§; *Goiás* – Itumbiara§; *Mato Grosso* – Aquidauana§, Camapuan§.

275. **Lutzomyia vargasi** (Fairchild & Hertig)

Phlebotomus vargasi Fairchild & Hertig, 1961 – *Proceedings of the Entomological Society of Washington*, 63: 24, 25, 27 (M*).

Lutzomyia Vargasi Forattini, 1973 – "Entomologia Médica, 4º Volume": 357 (M*).

MEXICO: *Morelos* – Cañon de Lobos.

INADEQUATELY DESCRIBED SPECIES

The species listed here are given the generic and subgeneric names used in the original descriptions; all seem to be members of the genus *Lutzomyia*.

276. **Phlebotomus (Anthophorus) atulapai** de Léon

Phlebotomus (*Anthophorus*) *atulapai* de Léon, 1971 – *Revista del Colegio Médico de Guatemala*, 22: 187-189 (M*, F*).

GUATEMALA: *Chiquimula* – Esquipulas (Rio Atulapa).

277. **Phlebotomus Edentulous** de León

Phlebotomus Edentulous de Léon, 1971 – *Revista del Colegio Médico de Guatemala*, 22: 192-193 (F*).

GUATEMALA: ? (without reference to type locality).

278. **Phlebotomus Fonsecai** Costa Lima

Phlebotomus Fonsecai Costa Lima, 1932 – *Memórias do Instituto Oswaldo Cruz*, 26: 49-50, Plates XI, XIV, XXXI (F*).

BOLIVIA: *Santa Cruz* – Carmen (Gruta de las Inscriciones).

279. **Phlebotomus imperator** Alexander

Phlebotomus imperator Alexander, 1944 – *Revista de Entomologia*, 15: 316-317 (F). Dampf, 1947 – *Revista de Entomologia*, 18: 305 (F*).

Lutzomyia imperatrix Forattini, 1971 – *Papéis Avulsos de Zoologia*, 24: 103. Forattini, 1973 – "Entomologia Médica, 4º Volume": 354 (F*).

PERU: *Junin* – Huacapistana (Tarma).

280. Phlebotomus maracayensis Nuñez-Tóvar

Phlebotomus maracayensis Nuñez-Tóvar, 1924 – "Mosquitos y flebotomos de Venezuela": 43, Plate V (Fig. 3, 4) (M*).

VENEZUELA: *Aragua* – Tuenpido.

281. Phlebotomus (Psychodopygus) parimaensis Ortiz & Alvarez

Phlebotomus (*Psychodopygus*) *parimaensis* Ortiz & Alvarez, 1972 – *Revista del Instituto Nacional de Higiene*, 5: 141-142, 147 (F*).

VENEZUELA: *Territorio Federal Amazonas* – Nyayabateri (Serra Párima).

282. Phlebotomus (Anthophorus) piedra-ferroi de Léon

Phlebotomus (*Anthophorus*) *piedra-ferroi* de León, 1971 – *Revista del Colegio Médico de Guatemala*, 22: 189-190 (M*).

GUATEMALA: *Chiquimala* – Esquipulas (Piedra de los Fierros).

283. Phlebotomus singularis Costa Lima

Phlebotomus singularis Costa Lima, 1932 – *Memórias do Instituto Oswaldo Cruz*, 26: 50, Plates IX, XIV, XVIII (F*).

BRAZIL: *São Paulo* – Juqueri; ? *Minas Gerais* – Paracatu (?).

284. Phlebotomus (Anthophorus) tikalensis de Léon

Phlebotomus (*Anthophorus*) *tikalensis* de Léon, 1971 – *Revista del Colegio Médico de Guatemala*, 22: 190-191 (M*).

GUATEMALA: *Petén* – Tikal, Dos Lagunas.

Genus *WARILEYA* Hertig

(Figs. 166-169, Map XXIX)

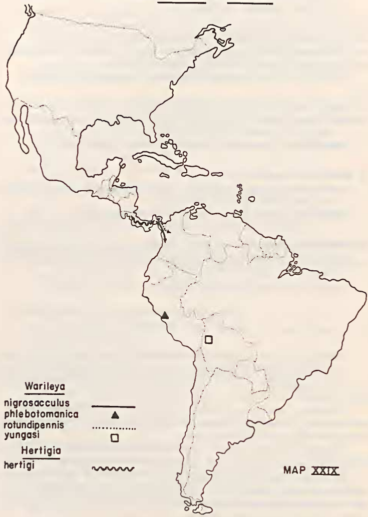
Warileya Hertig, 1940 – *Annals of the Entomological Society of America*, 41: 12 (genus defined with *Warileya phlebotomanica* Hertig as the type species). Fairchild & Hertig, 1951 – *Annals of the Entomological Society of America*, 44:422, 424 (generic characteristics reviewed).

Fifth palpal segment longer than the third segment but either longer or shorter than the second. Thorax lacking pleural setae. Wing broad and rounded; radius usually pinnately branched, with R_5 arising near R_4.

Cibarium of the female without teeth but weakly armed with scattered groups of fine spicules. Spermatheca sac-like with smooth, thin walls, or tubular and annulated.

Dististyle of the male long and cylindrical, with 2-4 well-developed spines; subterminal seta lacking. Basistyle short and thick, much shorter than the dististyle. Paramere simple and unarmed. Genital filaments short; aedeagus conspicuously divided. Lateral lobe about as long as the paramere.

Genera **WARILEYA** & **HERTIGIA**


Warileya
nigrosacculus
phlebotomanica ▲
rotundipennis
yungasi □
Hertigia
hertigi

MAP XXIX

1. **Warileya nigrosacculus** Fairchild & Hertig

   Warileya nigrosacculus Fairchild & Hertig, 1951 – *Annals of the Entomological Society of America*, 44: 427-429 (F*). Young & Chaniotis, 1972 – *Florida Entomologist*, 55: 97-98 (M*).

   PANAMA: *Canal Zone* – Limbo Field Station; *Panama* – Cerro Campana.
   COLOMBIA: *Choco* – Curiche.

2. **Warileya phlebotomanica** Hertig

   Warileya phlebotomanica Hertig, 1948 – *Annals of the Entomological Society of America*, 41: 9, 11, 12-15 (M*, F*).

   PERU: *Lima* – Valle Rimac (Matucana, Puente Carrión, Surco).

3. **Warileya rotundipennis** Fairchild & Hertig

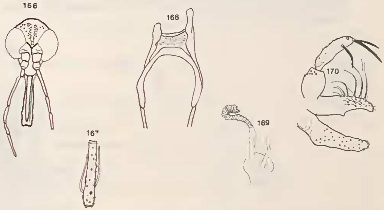
   Warileya rotundipennis Fairchild & Hertig, 1951 – *Annals of the Entomological Society of America*, 44: 423-426 (M*, F*).

   PANAMA: *Panama – Cerro Campana, La Victoria (Cerro Jefe).*
   COLOMBIA: *Antioquia* – Rio Anori.

4. **Warileya yungasi** Velasco & Trapido

   Warileya yungasi Velasco & Trapido, 1974 – *Journal of Medical Entomology*, 11: 433-436 (M*; wing venation more similar to that of *Hertigia* Fairchild, than to that of other species of *Warileya*).

   BOLIVIA: *La Paz* – type material (three males) collected in a disused mine shaft situated at 67°48′W, 16°21′S.



Figs 166-170. Genus *Warileya*. *W. rotundipennis*: female – head (166), fifth antennal segment (167), cibarium (168), spermatheca (other spermatheca shrunken and distorted) and ducts (169); *W. nigrosacculus*: male – genitalia (one spine on the diststyle detached and only its socker shown) (170).

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

Genus *HERTIGIA* Fairchild

(Figs. 171-174, Map XXIX)

Hertigia Fairchild, 1949 – *Proceedings of the Entomological Society of Washington*, **51**: 81 (genus defined with *Hertigia hertigi* Fairchild as the type species).

Fifth palpal segment shorter than both the second and the third segments. Antenna exceedingly long. Thorax lacking pleural setae. Wing long and slender, with the radius dichotomously branched.

Cibarium of the female without teeth; pharynx with several rows of slender spines posteriorly. Spermatheca large and sac-like, with smooth, thin walls.

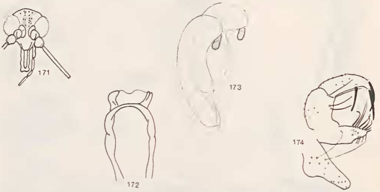
Dististyle of the male short and cylindrical, with three well-developed spines. Basistyle short and thick, with four spine-like setae distally. Paramere short, simple and unarmed but with many dorsal and internal hairs. Genital pump strongly chitinized; genital filaments short and heavy; aedeagus large, almost as long as the paramere. Lateral lobe short, shorter than the cercus.

1. **Hertigia hertigi** Fairchild

Hertigia hertigi Fairchild, 1949 – *Proceedings of the Entomological Society of Washington*, **51**: 81-82 (M). Fairchild, 1953 – *Proceedings of the Entomological Society of Washington*, **55**: 101-102 (F*).

COSTA RICA: La Roca, Pacuare (near Turrialba).

PANAMA: Limbo Field Station (8 km NW of Gamboa); Rio Chico Hydrographic Station (Upper Chagres River).



Figs. 171-174. Genus *Hertigia*. *H. hertigi*: male (based on Fairchild, 1949) – head (171), genitalia (174); female (based on Fairchild, 1953) – cibarium (172), spermathecae and ducts (173).

National Check Lists

CANADA
Lutzomyia aquilonia, L. oppidana, L. vexator occidentis, L. vexator vexator.

UNITED STATES OF AMERICA
Lutzomyia anthophora, L. aquilonia, L. californica, L. cruciata, L. cubensis, L. oppidana, L. shannoni, L. stewarti, L. texana, L. vexator occidentis, L. vexator vexator.

CUBA
Lutzomyia cubensis, L. orestes.

CAYMAN ISLANDS
Lutzomyia cayennensis baci, L. orestes.

JAMAICA
Lutzomyia cayennensis jamaicensis, L. duppyorum.

HAITI
Lutzomyia cayennensis hispaniola, L. christophei.

DOMINICAN REPUBLIC
Lutzomyia cayennensis hispaniola, L. christophei.

PUERTO RICO
Lutzomyia cayennensis puertoricensis, L. cayennensis viequesensis.

VIRGIN ISLANDS
Lutzomyia atroclavata, L. cayennensis viequesensis.

MARTINIQUE
Lutzomyia atroclavata.

GUADELOUPE
Lutzomyia atroclavata.

MEXICO
Brumptomyia galindoi, B. hamata.

Lutzomyia aclydifera, L. anthophora, L. beltrani, L. carpenteri, L. cayennensis cayennensis maciasi, L. chiapanensis, L. cratifera, L. cruciata, L. ctenidophora, L. dasymera, L. deleoni, L. delpozoi, L. dodgei, L. durani, L. farilli, L. hardisoni, L. inusitata, L. longipalpis, L. olmeca, L. oppidana, L. ovallesi, L. panamensis, L. paterna (fossil), *L. permira, L. pratti, L. serrana, L. shannoni, L. steatopyga, L. stewarti, L. texana, L. trinidadensis, L. undulata, L. vargasi, L. vexator vexator, L. vindicator, L. wirthi, L. ylephiletor.*

BELIZE
Brumptomyia galindoi, B. hamata, B. leopoldoi.

Lutzomyia beltrani (Belize form), *L. bispinosa, L. carpenteri, L. cayennensis cayennensis* (?), *L. cayennensis maciasi, L. cratifera, L. cruciata, L. deleoni, L. delpozoi, L. geniculata, L. olmeca, L. ovallesi, L. panamensis, L. permira, L. shannoni, L. trinidadensis, L. triramulus, L. undulata, L. ylephiletor.*

GUATEMALA
Lutzomyia atulapai, L. cayennensis maciasi, L. cruciata, L. deleoni, L. edentulous, L. longipalpis, L. olmeca, L. piedraferroi, L. tikalensis, L. undulata.

EL SALVADOR
Lutzomyia barrettoi, L. cayennensis cayennensis, L. chiapanensis, L. cruciata, L. deleoni, L. dodgei, L. evansi, L. gomezi, L. longipalpis, L. undulata.

HONDURAS
Brumptomyia cunhai (?), *B. galindoi.*

Lutzomyia aclydifera, L. beltrani, L. bispinosa, L. cratifera, L. cruciata, L. deleoni, L. furcata, L. odax, L. olmeca, L. ovallesi, L. sanguinaria, L. serrana, L. shannoni, L. trapidoi, L. trinidadensis, L. undulata, L. ylephiletor.

NICARAGUA
Lutzomyia barrettoi, L. bispinosa, L. cruciata, L. dasymera, L. evansi, L. gomezi, L. nicaraguensis, L. odax, L. panamensis, L. serrana, L. shannoni, L. trinidadensis, L. vesicifera, L. ylephiletor.

COSTA RICA
Brumptomyia galindoi.

Lutzomyia aclydifera, L. anduzei, L. barrettoi, L. camposi, L. carpenteri, L. cayennensis cayennensis, L. chiapanensis, L. cruciata, L. dasymera, L. dysponeta, L. evansi,

L. gomezi, L. gorbitzi, L. longipalpis, L. ovallesi, L. panamensis, L. pilosa, L. rosabali, L. runoides, L. sanguinaria, L. saulensis, L. serrana, L. shannoni, L. trapidoi, L. trinidadensis, L. vesicifera, L. vespertilionis, L. viriosa, L. ylephiletor.

Hertigia hertigi.

PANAMA

Brumptomyia avellari, B. galindoi, B. hamata, B. leopoldoi, B. travassosi.

Lutzomyia abonnenci, L. aclydifera, L. anduzei, L. aragaoi, L. atroclavata, L. barrettoi, L. bispinosa, L. botella, L. camposi, L. carpenteri, L. cratifera, L. cruciata, L. dasymera, L. dysponeta, L. cayennensis cayennensis, L. chiapanensis, L. furcata, L. gasti, L. geniculata, L. gomezi, L. gorbitzi, L. hartmanni, L. insolita, L. isovespertilionis, L. lichyi, L. longipalpis, L. marajoensis, L. micropyga, L. nordestina, L. odax, L. olmeca bicolor, L. oresbia, L. ovallesi, L. panamensis, L. pessoana, L. pia, L. reburra, L. rosabali, L. runoides, L. sanguinaria, L. saulensis, L. serrana, L. shannoni, L. socculus, L. spinosa, L. tintinabula, L. trapidoi, L. trinidadensis, L. triramulus, L. tuberculata, L. undulata, L. vesicifera, L. vespertilionis, L. viriosa, L. volcanensis, L. ylephiletor.

Warileya nigrosacculus, W. rotundipennis.

Hertigia hertigi.

COLOMBIA

Brumptomyia avellari, B. beaupertuyi, B. galindoi.

Lutzomyia abonnenci, L. aclydifera, L. andina, L. anduzei, L. antunesi, L. aragaoi, L. atroclavata, L. auraensis, L. ayrozai (?), *L. barrettoi, L. bernalei, L. bifoliata, L. camposi, L. caprina, L. carrerai, L. c. cayennensis, L. chagasi, L. cirrita, L. colombiana, L. cratifera, L. damascenoi, L. dasymera, L. davisi, L. dendrophila, L. dreisbachi, L. evansi, L. fairtigi, L. flaviscutellata, L. furcata, L. gasti, L. geniculata, L. gomezi, L. hartmani, L. lichyi, L. longiflocosa, L. longipalpis, L. longispinus, L. marajoensis, L. micropyga, L. migonei, L. nocticola, L. nordestina, L. olmeca bicolor, L. osornoi, L. ovallesi, L. panamensis, L. paraensis, L. pessoana, L. pia, L. pilosa, L. punctigeniculata, L. quasitownsendi, L. rangeliana, L. reburra, L. recurva, L. rorotaensis, L. rosabali, L. runoides, L. sanguinaria, L. saulensis, L. sauroida, L. serrana, L. shannoni, L. spinicrassa, L. spinosa, L. squamiventris, L. tintinabula, L. trapidoi, L. triacantha, L. trinidadensis, L. triramulus, L. tuberculata, L. ubiquitalis, L. venezuelensis, L. vespertilionis, L. ylephiletor, L. yuilli.*

Warileya nigrosacculus, W. rotundipennis.

ECUADOR

Brumptomyia hamata, B. leopoldoi, B. pentacantha.

Lutzomyia barrettoi, L. camposi, L. cayennensis cayennensis, L. dysponeta, L. gomezi, L. nordestina, L. olmeca bicolor, L. serrana, L. shannoni, L. trapidoi, L. vespertilionis.

PERU

Brumptomyia avellari, B. pentacantha.

Lutzomyia abonnenci, L. acostai, L. amazonensis, L. anduzei, L. antunesi, L. aragaoi, L. auraensis, L. barrettoi, L. battistinii, L. bicornuta, L. brasiliensis, L. calcarata, L. caprina, L. carrerai, L. cayennensis cayennensis, L. chagasi, L. choti, L. cortelezzii, L. coutinhoi, L. cuzquena, L. davisi, L. dendrophila, L. evangelistai, L. evansi, L. fischeri, L. flaviscutellata, L. furcata, L. geniculata, L. gomezi, L. gorbitzi, L. imperator, L. incasica, L. lichyi, L. loretonensis, L. machupicchu, L. micropyga, L. nevesi, L. noguchii, L. nordestina, L. octavioi, L. omagua, L. panamensis, L. paraensis, L. peruensis, L. pescei, L. pessoana, L. punctigeniculata, L. quechua, L. ruparupa, L. saulensis, L. scaffi, L. serrana, L. servulolimai, L. shannoni, L. sherlocki, L. triacantha, L. trinidadensis, L. trispinosa, L. verrucarum, L. walkeri, L. yuilli.

Warileya phlebotomanica.

BOLIVIA

Brumptomyia pentacantha.

Lutzomyia auraensis, L. boliviana, L. calcarata, L. campbelli, L. davisi, L. dendrophila, L. fonsecai, L. longipalpis, L. micropyga, L. navesi, L. punctigeniculata, L. sallesi, L. serrana, L. shannoni, L. trinidadensis, L. walkeri.

Warileya yungasi.

VENEZUELA

Brumptomyia beaupertuyi, B. devenanzii, B. galindoi.

Lutzomyia anduzei, L. antunesi, L. atroclavata, L. baityi, L. cayennensis cayennensis, L. ceferinoi, L. dasymera, L. dysponeta, L. evansi, L. fischeri, L. flaviscutellata, L. gomezi, L. hernandezi, L. ignacioi, L. lichyi, L. longipalpis, L. longispinus, L. lutziana, L. maracayensis, L. marajoensis, L. micropyga, L. migonei, L. nuneztovari, L. ottolinai, L. ovallesi, L. panamensis, L. punctigeniculata, L. rangeliana, L. scorzai, L. shannoni, L. squamiventris, L. townsendi, L. trinidadensis, L. ubiquitalis, L. venezuelensis, L. yencanensis.

TRINIDAD

Lutzomyia amazonensis (?), *L. antunesi, L. atroclavata, L. cayennensis cayennensis, L. flaviscutellata, L. gomezi, L. marajoensis, L. micropyga, L. ovallesi, L. pilosa, L. shannoni, L. trinidadensis.*

GUYANA

Lutzomyia squamiventris.

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

SURINAM

Lutzomyia anduzei, L. antunesi, L. arthuri (?), L. flaviscutellata, L. geniculata, L. guyanensis, L. infraspinosa, L. pacae, L. panamensis, L. shannoni, L. squamiventris, L. tuberculata.

FRENCH GUYANA

Brumptomyia pintoi, B. spinosipes, B. travassosi.

Lutzomyia abonnenci, L. anduzei, L. antunesi, L. aragaoi, L. ayrozai (?), L. barrettoi, L. brachipyga, L. brachyphallus, L. brasiliensis, L. bursiformis, L. campbelli, L. carvalhoi, L. cayennensis cayennensis, L. chassigneti, L. choti, L. davisi, L. dendrophila, L. dreisbachi, L. elongata, L. fariasi, L. flaviscutellata, L. flochi, L. fluviatilis, L. furcata, L. gomezi, L. guyanensis, L. hirsuta, L. inflata, L. infraspinosa, L. ininii, L. lutziana, L. maripaensis, L. monstruosa, L. nordestina, L. pacae, L. peresi, L. punctigeniculata, L. quadrispinosa, L. rorotaensis, L. saulensis, L. sericea, L. shannoni, L. spinosa, L. sylvicola, L. trichopyga, L. trinidadensis, L. tuberculata, L. ubiquitalis, L. whitmani.

BRAZIL

Brumptomyia avellari, B. bragai, B. brumpti, B. cardosoi, B. cunhai, B. figueiredoi, B. galindoi, B. guimaraesi, B. mangabeirai, B. nitzulescui, B. orlandoi, B. ortizi, B. pentacantha, B. pintoi, B. travassosi, B. troglodytes, B. virgensi.

Lutzomyia abonnenci, L. acanthopharynx, L. alencari, L. alphabetica, L. amarali, L. amazonensis, L. anduzei, L. antunesi, L. appendiculata, L. aragaoi, L. arthuri, L. auraensis, L. ayrozai, L. baculus, L. bahiensis, L. baityi, L. barrettoi, L. bispinosa, L. borgmeieri, L. bourrouli, L. brachipyga, L. brachyphallus, L. brasiliensis, L. breviductus, L. calcarata, L. callipyga, L. caligata, L. campbelli, L. carrerai, L. castanheirai, L. castroi, L. cavernicola, L. cerqueirai, L. chagasi, L. choti, L. cipoensis, L. correalimai, L. costalimai, L. coutinhoi, L. cruzi, L. carvalhoi, L. damascenoi, L. dasipodogeton, L. davisi, L. dendrophila, L. digitata, L. dispar, L. dreisbachi, L. dunhami, L. edwardsi, L. equatorialis, L. eurypyga, L. evandroi, L. evangelistai, L. fairchildi, L. fariasi, L. ferreirana, L. firmatoi, L. fischeri, L. flabellata, L. flaviscutellata, L. flochi, L. furcata, L. gaminarai, L. gasparviannai, L. geniculata, L. goiana, L. gomezi, L. hermanlenti, L. hirsuta, L. infraspinosa, L. inornata, L. intermedia, L. ischnacantha, L. ischyracantha, L. lanei, L. lainsoni, L. lenti, L. lichyi, L. lloydi, L. longipalpis, L. longipennis, L. longispinus, L. lopesi, L. lutziana, L. mangabeirai, L. marajoensis, L. maripaensis, L. matosi, L. meirai, L. melloi, L. microps, L. micropyga, L. migonei, L. minasensis, L. misionensis, L. monstruosa, L. monticola, L. nevesi, L. nordestina, L. octavioi, L. odax, L. oliveirai, L. oliverioi, L. oswaldoi, L. pacae, L. panamensis, L. paraensis, L. pascalei, L. paulwilliamsi, L. pelloni, L. peresi, L. pessoai, L. pessoana, L. pestanai, L. petropolis, L. pilosa, L. punctigeniculata, L. quinquefer, L. renei, L. rondoniensis, L. rorataensis, L. rostrans, L. runoides, L. rupicola, L. sallesi, L. samueli, L. saulensis, L. schreiberi, L. scaffi, L. sericea, L. serrana, L. servulolimai, L. shannoni, L. sherlocki, L. singularis, L. spathotricha, L. spinosa, L. squamiventris, L. souzacastroi, L. souzalopesi, L. sylvi-

cola, L. termitophila, L. teratodes, L. triacantha, L. trichopyga, L. trinidadensis, L. trispinosa, L. tuberculata, L. tupynambai, L. ubiquitalis, L. viannamartinsi, L. wagleyi, L. walkeri, L. wellcomei, L. whitmani, L. williamsi, L. wilsoni, L. zikani.

URUGUAY
Lutzomyia cortelezzii, L. gaminarai.

PARAGUAY
Lutzomyia aragaoi, L. intermedia, L. longipalpis, L. migonei, L. pessoai, L. shannoni, L. walkeri, L. whitmani.

ARGENTINA
Brumptomyia pintoi.

Lutzomyia alphabetica, L. cortelezzii, L. intermedia, L. longipalpis, L. microcephala, L. migonei, L. misionensis, L. monticola, L. pascalei, L. quinquefer, L. shannoni, L. sordellii, L. whitmani.

Vernacular Names

The adoption of vernacular names, or the absence of common names, can be useful indicators of the economic importance of Phlebotominae in a particular area. Fairchild & Trapido (1950), when visiting several Caribbean Islands, found that nobody recognized Phlebotomines and that there were no vernacular names for them. Thirteen species or subspecies of *Lutzomyia* have been reported from Caribbean Islands (Trinidad being considered to form part of South America); none of the West Indian species have been reported biting man and they all probably take blood meals on birds or cold-blooded vertebrates. No vernacular names have been reported from Ecuador; of the 14 species recorded there, only four are known to bite man – and two of these bite man rarely. In complete contrast, in neighbouring Colombia sand flies are known – in different parts of the country – by at least 21 vernacular names (Osorno-Mesa, Morales-Alarcon, de Osorno & Ferro-Vela, 1972).

Where Phlebotominae have vernacular names it is likely that the flies, perhaps only at certain times of the year, occur in such high numbers and have sufficient contact with man that they can be reckoned to be pest insects. And pest insects with haematophagous habits are, inevitably, suspect vectors of pathogens to man.

Lists of vernacular names should be accepted cautiously. Some of the names seem to be general terms for any small, blood-feeding Nematoceran. In Brazil, some names reportedly applied to Phlebotominae are more commonly used to recognize Ceratopogonidae or Simuliidae or both.

Dampf (1947), Forattini (1959), Marmol Leon (1968) and Llanos (1971) listed vernacular names by countries. Here, we list common names in alphabetical order to emphasize similarities in folk-lore in widely separated parts of Latin America. Some of the names given to Phlebotominae derive from the local Amerindian language, others seem to be original Amerindian names distorted by Spanish-speaking or Portuguese-speaking settlers, whereas others have clear Spanish or Portuguese origins.

Aguilita: COLOMBIA (Osorno-Mesa, Morales-Alarcon & de Osorno, 1966; Osorno-Mesa *et al*, 1972).

Aliblanco: COLOMBIA (Osorno-Mesa *et al,* 1972). This alludes to the pale, feathery appearance of the wings of sand flies, which is the basis for many vernacular names throughout Latin America.

Aludo: COLOMBIA (Osorno-Mesa *et al,* 1972).

Angoleta: VENEZUELA, State of Merida (Anduze, 1943; Dampf, 1947). The name could have an origin common with "aguilita" of Colombia. Anduze (1943) recorded "angoleta" from wooded areas and plantations of Tierra Llana, at an altitude of 1,500 metres.

Arenilla: COLOMBIA (Osorno *et al,* 1966; Osorno *et al,* 1972).

Asa Branca: BRAZIL, State of Bahia (Sherlock, 1964). This name is another allusion to the wings of Phlebotominae. Sherlock (1964) recorded the name near Itaite, but it is also used in parts of the State of Minas Gerais.

Asa Dura: BRAZIL, State of Bahia (Sherlock, 1964). Sherlock (1964) recorded the name near Itaite. We suspect that the name is applied to the studier, non-haematophagous Psychodidae rather than to Phlebotominae.

Berebere (Llanos, 1971), *Berere* (Marmol Leon, 1968), *Berere* (Forattini, 1959): BRAZIL, without references to State. These are clearly variants of the same word with Forattini's spelling probably being the most exact. The name possibly applies to a variety of small haematophagous Diptera rather than to Phlebotominae.

Borrachudes (Pupo, 1923), *Borrachuda* (Sherlock, 1964): BRAZIL. These seem to be variants of the same word, recorded from "southern" Brazil (Pupo, 1923) and the State of Bahia (Sherlock, 1964). The name given by Sherlock suggests origins from the Portuguese nouns "borrachão" (= a drunkard) or "borrachico (= a drunk person) and could be an allusion to the hopping, erratic flight or Phlebotomines.

Biriguy, Biriqui: BRAZIL. These are alternative spellings. The first version was recorded by Pupo (1923) from "southern" Brazil but Froes (1939) stated that the name was in use in Sergipe, one of the northeastern states of Brazil. All publised records of "biriquie" (Lutz & Neiva, 1912; Lutz, Araujo & Fonseca, 1918; França, 1920; Dampf, 1947; Sampaio, 1951; Forattini, 1959; Llanos, 1971) originate from forest areas in the State of São Paulo. Lutz & Neiva (1912) found the name in common use along Rio Tietê; Lutz *et al* (1918) found it common along Rio Paraná. A diminutive form of the name, "biriguyzino", was recorded by Shattuck (1938) from the State of São Paulo but there are no later references to this usage.

Blanquin: COLOMBIA (Osorno-Mesa *et al,* 1972). This could be a fusion of words of Spanish and Amerindian origin, being yet another reference to the wings of Phlebotominae.

Cangalhinha: BRAZIL, without reference to State (Forattini, 1959; Marmol Leon, 1968). Perhaps a general name for any small, blood-feeding fly.

Capolillo: COLOMBIA (Osorno-Mesa *et al,* 1966; Osorno-Mesa *et al,* 1972).

Caranchen: PARAGUAY (Forattini, 1959). Although only eight species of Phlebotominae have been recorded from Paraguay, six species are known as man-biters and five of these often occur in peridomestic habitats.

Chicra: COLOMBIA (Osorno-Mesa *et al*, 1972). (? A misprint of chitra).

Chitra: PARANA (Fairchild, 1943). A suggested origin is from "chite" (≑ silence) or "chito" (= quiet). While female Phlebotomines may attack in silence, their bites can be disquieting!

Chorilo: COLOMBIA (Osorno-Mesa *et al*, 1972).

Jejen: COLOMBIA (Osorno-Mesa *et al,* 1972) and PERU (Pesce & Pardo, 1943). This name was not mentioned by Herrer (1943) or by Llanos (1971), both with considerable and wide experience of Phlebotominae in Peru. It could be a general name for any small blood-sucking Nematoceran.

Karachai: VENEZUELA (Dampf, 1947). This name was not listed by Marmol Leon (1968).

Manta blanca: COLOMBIA (Osorno-Mesa *et al,* 1972) and PERU (Pesce & Pardo, 1943; Herrer, 1943). Pesce & Pardo (1943) reported that the name was in use in northern Peru; Herrer (1943) recorded it only in one place (Ichocan).

Mosco blanco: MEXICO (Dampf, 1947) and COLOMBIA (Osorno-Mesa *et al,* 1972). A name common to Mexico and Colombia suggests that Spanish settlers in the Americas early became acquainted with Phlebotominae. Dampf (1947) recorded the name in use by chicleros (collectors of raw chewing-gum) in the Bacalar Lagoon area of Quintana Roo. Many of the chicleros of Quintana Roo are Amerindians.

Mosquillo: COLOMBIA (Osorno-Mesa *et al*, 1972). The word is a diminutive of "mosquito", which is, itself, a diminutive of "mosca".

Mosquito palha: BRAZIL, State of Sergipe (Froes, 1939).

Mosquito do rio: BRAZIL, State of Bahia (Sherlock, 1964). The name was recorded near Itaite. Few species of American Phlebotominae have a close association with water; those that do are believed to feed on cold-blooded vertebrates but the incidence of certain mammal-feeding sand flies can be influenced by seasonal changes in the water levels of rivers.

Muruino: northern BRAZIL (Pupo, 1923). There is no later reference to the name being applied to Phlebotominae but it is used to recognize other small blood-sucking Nematocerans.

Papalomoyo: COSTA RICA (Llanos, 1971). The word could be a further development, or distortion, of "papolotilla".

Papolotilla: MEXICO, State of Campeche (Biagi & de Biagi, 1953). Although not mentioned by Dampf (1947), one of us (P.W.) heard the name used in Quintana Roo in 1963. The name is known to but a few forest workers in Belize; those using the name are of Mexican origin or have Mexican associations. Biagi & de Biagi (1953) supposed that the word derived from "mariposa" (= butterfly, moth) and "mariposilla" (= little moth).

Palomilla: COLOMBIA (Osorno-Mesa *et al,* 1972) and VENEZUELA (Dampf, 1947).

Pito: VENEZUELA (Marmol Leon, 1968).

Plumilla: PERU (Herrer, 1943; Llanos, 1971). The name probably derives from "pluma" (= feather).

Pringador: COLOMBIA (Forattini, 1959; Osorno-Mesa *et al,* 1966; Osorno-Mesa *et al,* 1972).

Puma: PERU (Herrer, 1943). Llanos (1971) did not list this name; Herrer (1943) recorded it only in Nunumabamba.

Quemador: COLOMBIA (Forattini, 1959; Marmol Leon, 1968; Llanos, 1971; Osorno-Mesa *et al,* 1972).

Rapache: PERU (Herrer & Blancas, 1959/60; Llanos, 1971). Herrer & Blancas (1959/60) recorded the name at Anco, Mantaro Valley.

Ringador: COLOMBIA (Llanos, 1971). (? a distortion or misprint of "pringador").

Ringuirringue: VENEZUELA, State of Guarico (Torrealba, 1961). A name used in Santa Maria de Ipire.

Risa, risito, riso: COLOMBIA (Osorno-Mesa *at al,* 1972). These are clearly local variations of the same word.

Ruirui: VENEZUELA, State of Guarico (Torrealba, 1961); recorded from Santa Maria de Ipire and Zaraza.

Sejen: COLOMBIA (Osorno-Mesa *et al,* 1972).

Solamilla: COLOMBIA (Osorno-Mesa *et al,* 1972).

Tatuquira: BRAZIL, State of Pará (Franca, 1920; Dampf, 1947), "northern" Brazil (Pupo, 1923), State of Sergipe (Froes, 1939). The name implies association with "tatus" (= armadillos).

Titi and *Titira:* PERU (Shannon, 1929); Herrer, 1943; Pesce & Pardo, 1943; Dampf, 1947; Forattini, 1959; Llanos, 1971). In the verruga (Bartonellosis) zone of Peru, Shannon (1929) recorded both names (with "titira" the more common) for Phlebotominae but noted that both names were applied to crane flies (Tipulidae). Shannon suggested that the word derived from the Quechua (Kishua) name "tieti" (= wart); if this derivation is correct, inhabitants of verruga areas probably recognized Carrion's disease to be insect-borne well before proof was obtained.

Tarrayita: VENEZUELA, State of Guarico (Torrealba, 1961). Recorded in Distrito Roscio only.

Wanwa: PERU (Llanos, 1971).

Zancudo pichon: COLOMBIA (Osorno-Mesa *et al,* 1972).

Appendix

Works cited in the initial reference lists for each taxon are only included in the general list of reference when the paper is mentioned in the text or in the records of geographical distribution. To facilitate reference to the original descriptions of New World Phlebotominae, we give here a list of journals, together with the relevant volume numbers, consulted during the preparation of the present work.

Acta Biologica Venezuelica – **1, 3, 4, 5.**
Acta Médica – **7.**
American Journal of Hygiene – **10, 20, 32, 37, 40.**
Anais da Faculdade de Medicina da Universidade de São Paulo – **16, 17, 22.**
Anais Paulistas de Medicina e Cirurgia – **14.**
Anales de la Escuela Nacional de Ciencias Bilogicas – **1, 4.**
Annales de Parasitologie Humaine et Comparée – **8, 9, 12, 18, 26.**
Annals of the Entomological Society of America – **40, 41, 43, 44, 45, 46, 48, 49, 50, 51, 54.**
Annals of Tropical Medicine and Parasitology – **16.**
Archives des Instituts Pasteur de l'Afrique du Nord – **1.**
Archives de l'Institut Pasteur de la Guyane française et de l'Inini, Publication Nº 496.
Archivos Venezolanos de Medicina Tropical y Parasitologia Médica – **4, 5.**
Arquivos da Faculdade de Higiene e Saúde Pública – **13.**
Arquivos de Higiene e Saúde Pública – **5, 6.**
Arquivos de Zoologia do Estado de São Paulo – **1, 5.**
Boletim Biológico (NS) – **1, 4.**
Boletim do Museu de História Natural da Universidade Federal de Minas Gerais. Zoologia N^{os} **1, 3, 6, 9, 12.**
Boletín de Entomologia Venezolana – **1, 2.**
Boletín del Instituto de Clínica Quirúrgica – **2, 4.**
Boletín del Instituto de Estudios Médicos y Biologicos – **9.**
Boletín del Laboratório de la Clínica "Luis Razetti" – **15.**
Boletín Venezolano de Laboratorio Clínico – **4.**
Brasil-Médico – **50.**
Bulletin of Entomological Research – **3, 5, 23, 39, 57, 64, 66.**
Bulletin de la Societé de Pathologie Exotique – **13.**
Bulletin de la Societé Portugaise des Sciences Naturelles – **8, 10.**
Bulletin de la Societé Zoologique de France – **13.**
Caldasia – **10.**
Ciência e Cultura – **17, 27.**
Ciência Médica – **4.**

Documenta de Medicina Geographica et Tropica – **9.**
Entomological News – **18.**
Florida Entomologist – **55, 56, 57.**
Folha Médica – **3.**
Folia Clinica et Biologica – **16, 26.**
Folio die Zoologie und Hydrobiologie – **4.**
Insecutor Inscitiae Menstruus – **1, 14.**
Institut Pasteur de la Guyane française et du Territoire de l'Inini, Publications N^os^ **15, 23, 28, 30, 34, 38, 60, 61, 75, 80, 81, 83, 90, 96, 98, 100, 106, 140, 151, 152, 155, 157, 167, 178, 208, 288, 326.**
Jornal do Comércio (Rio de Janeiro) – **112.**
Jornal de Sciências Matemáticas, Físicas e Naturais – **17.**
Journal of Entomology (Series A) – **50.**
Journal of Medical Entomology – **2, 5, 8, 9, 10, 11.**
Journal of Natural History – **2.**
Journal of Paleontology – **37.**
Journal of Parasitology – **31.**
Journal of the Washington Academy of Sciences – **16.**
Medicína-Revista Méxicana – **27, 33.**
Memórias do Instituto Butantan – **10, 12.**
Memórias do Instituto Oswaldo Cruz – **4, 26, 33, 36, 37, 41, 42, 43, 60, 69, 70.**
Papéis Avulsos do Departamento de Zoologia, Secretaria da Agricultura, São Paulo – **1, 8, 11, 18.**
Papéis Avulsos de Zoologia – **24.**
Primeras Jornadas Entomo-epidemiologicas Argentinas – **1.**
Proceedings of the Entomological Society of Washington – **38, 49, 51, 55, 63, 72.**
Proceedings of the Royal Entomological Society of London – (Series B) – **28, 36.**
Revista de la Academia Colombiana de Ciencias Exactas, Fisicas y Naturales – **13.**
Revista de Biologia e Higiene – **8, 10, 11.**
Revista Brasileira de Biologia – **3, 6, 17, 19, 21, 22, 23, 24, 25, 29, 30, 31, 32, 33, 34, 35, 36.**
Revista Brasileira de Entomologia – **3, 5.**
Revista Brasileira de Malariologia e Doenças Tropicais – **9, 10, 12, 14, 16, 17, 18, 22.**
Revista del Colegio Médico de Guatemala – **22.**
Revista Ecuatoriana de Higiene y Medicina Tropical – **7, 8/9, 10, 13.**
Revista de Entomologia – **6, 15, 18.**
Revista do Hospital das Clínicas – **10.**
Revista del Instituto Bacteriologico del Departamento Nacional de Higiene – **4.**
Revista do Instituto de Medicina Tropical de São Paulo – **4, 9.**
Revista del Instituto Nacional de Higiene – **5.**
Revista del Instituto de Salubridad y Enfermedades Tropicales – **10, 12, 13, 19, 23.**
Revista de Medicina Experimental – **13.**
Revista Médico-Cirúrgica do Brasil – **44.**
Revista de Sanidad y Asistencia Social – **16, 17.**
Revista de la Sanidad Militar Argentina – **49.**
Revista de Saúde Pública – **4, 5.**
Revista do Serviço Especial de Saúde Pública – **2, 3.**
Revista de la Sociedad Méxicana de História Natural – **5, 8, 13.**
Salud Pública – **5.**
Semana Médica – **30, 33.**
Studia Entomologica – **3, 15.**

References

ADDIS, C. J.
1945. *Phlebotomus (Dampfomyia) anthophorus* n. sp. and *Phlebotomus diabolicus* Hall from Texas (Diptera: Psychodidae).
Journal of Parasitology, **31**: 119-127.

ADLER, S. & THEODOR, O.
1926. On the *minutus* group of the genus *Phlebotomus* in Palestine. *Bulletin of Entomological Research*, **16**: 399-405.

ANDUZE, P. J.
1943. Estudios de Entomologia Medica en el Estado Merida.
Boletin de Entomologia Venezolana, **2**: 149-156.

BARRETO, P.
1969. Artropodos hematofagos del Rio Raposo, Valle, Colombia. IV: Psychodidae.
Caldasia, **10**: 459-472.

BARRETTO, M. P.
1947. Catálogo dos flebótomos americanos.
Arquivos de Zoologia do Estado de São Paulo, **5**: 177-242.
1955. Sobre a sistemática da subfamília Phlebotominae Rondani (Diptera, Psychodidae).
Revista Brasileira de Entomologia, **3**: 173-190.
1961*a*. Introdução ao estudo sistemático dos flebótomos americanos (Diptera, Psychodidae).
Ribeirão Preto: Faculdade de Medicina da Universidade de Ribeirão Preto, São Paulo – 171 pp. (*Mimeograph*).
1961*b*. Subfamílias e gêneros neotropicais da família Psychodidae Big., 1854 (Diptera).
Papéis Avulsos do Departamento de Zoologia, São Paulo, **14**: 211-225.
1962. Novos subgêneros de *Lutzomyia* França, 1924 (*Diptera, Psychodidae*, subfamília *Phlebotominae*).
Revista do Instituto de Medicina Tropical de São Paulo, **4**: 91-100.

BIAGI F., & de BIAGI, A. M. de B.
1953. Algunos flebotomus del área endémica de Leishmaniasis Tegumentaria Americana del Estado de Campeche (Méx).
Medicina – Revista Méxicana, **33**: 315-319.

BRUIJNING, C. F. A.
1957. Manbiting sandflies (*Phlebotomus*) in the endemic leishmaniasis area of Surinam.
Documenta de Medicina Geographica et Tropica, **9**: 229-236.

CHRISTENSEN, H. A.
1972. Check list of the Phlebotomine sand flies (Diptera: Psychodidae) of Panama including two species not previously reported.
Mosquito News, **32**: 88-89.

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

COELHO,M. V., CUNHA, A. S. & FALCÃO, A. R.
1965. Notas sobre um foco de calazar no sudoeste do Estado de Goiás.
Revista Brasileira de Malariologia e Doenças Tropicais, **17: 143-148.**

COQUILLETT, D. W.
1907. Discovery of blood sucking Psychodidae in America.
Entomological News, **18: 101-102.**

da COSTA LIMA, A.
1932. Sobre os phlebotomos americanos (Diptera: Psychodidae).
Memórias do Instituto Oswaldo Cruz, **26: 15-69.**

DAMPF, A.
1944. Notas sobre Flebotómidos mexicanos. Observaciones generales y descripcion de dos especies nuevas (*Phlebotomus oppidanus* y *Phl vindicator*) encontradas en la Ciudad de México (Ins. Diptera, Fam. Phlebotomidae).
Revista de la Sociedad Méxicana de Historia Natural, **5: 237-254.**
1947. Notas sobre Flebotómidos Mexicanos III. – Un nuevo flebótomo (*P. chiapanensis* n. sp.) aparentemente antropófilo.
Medicina – Revista Méxicana, **27: 179-183.**

DYAR, H. G.
1929. The present knowledge of the American species of *Phlebotomus* Rondani (Diptera, Psychodidae).
American Journal of Hygiene, **10: 112-124.**

FAIRCHILD, G.B.
1943. An annotated list of the bloodsucking insects, ticks and mites known from Panama.
American Journal of Tropical Medicine, **23: 569-591.**
1949. A new fly related to *Phlebotomus* from Panama (Diptera, Psychodidae).
Proceedings of the Entomological Society of Washington, **51: 81-84.**
1953. A note on *Hertigia hertigi* Fairchild and description of the female (Diptera, Psychodidae).
Proceedings of the Entomological Society of Washington, **55: 101-102.**
1955. The relationships and classification of the Phlebotominae (Diptera, Psychodidae).
Annals of the Entomological Society of America, **48: 182-196.**

FAIRCHILD, G. B. & HERTIG, M.
1950. Notes on the *Phlebotomus* of Panama (Diptera, Psychodidae) VI. *Phlebotomus shannoni* Dyar and related species.
Annals of the Entomological Society of America, **43: 523-533.**
1951*a*. Notes on the *Phlebotomus* of Panama (Diptera, Psychodidae) VII. The subgenus *Shannonomyina* Pratt.
Annals of the Entomological Society of America, **44: 399-421.**
1951*b*. Notes on the *Phlebotomus* of Panama (Diptera, Psychodidae) VIII. Two new species of *Warileya*.
Annals of the Entomological Society of America, **44: 422-429.**
1959. Geographic distribution of the *Phlebotomus* sandflies of Central America (Diptera: Psychodidae).
Annals of the Entomological Society of America, **52: 121-124.**
1961*a*. Notes on the *Phlebotomus* of Panama XVI (Diptera, Psychodidae). Description of new and little-known species from Panama and Central America.
Annals of the Entomological Society of America, **54: 237-255.**

FAIRCHILD, G. B. & TRAPIDO, H.
1950. The West Indian species of *Phlebotomus* (Dipt., Psychodidae).
Annals of the Entomological Society of America, **43: 405-417.**

FORATTINI, O. P.
1959. Flebótomos transmissores das leishmanioses na região neotropical.
Archivos Venezolanos de Patologia Tropical y Parasitología Médica, **3: 192-207.**
1971. Sobre a classificação da subfamília Phlebotominae nas Américas (Diptera, Psychodidae).
Papéis Avulsos de Zoologia, São Paulo, **24: 93-111.**

cm 1 2 3 4 5 6 SciELO 10 11 12 13 14 15

FORATTINI, O.P.
1973. Entomologia Médica, 4º Volume: Psychodidae, Phlebotominae, Leishmanioses, Bartonelose.
São Paulo: Editora Edgard Blucher Ltda & Editora da Universidade de São Paulo – 658 pp.

FRANÇA, C.
1920. Observations sur le genre *Phlebotomus* II: *Phlebotomus* du Nouveau Monde (Phlébotomes du Brésil et du Paraguay).
Bulletin de la Société Portugaise des Sciences Naturelles, 8: 215-236.
1924. Notes parasitologiques IV.
Jornal de Sciências Matematicas, Physicas e Naturais, 17: 1-12.

FRANÇA, C. & PARROT, L.
1920. Introduction à l'étude systématique des Diptères du genre *Phlebotomus.*
Bulletin de la Société de Pathologie Exotique, 13: 695-708.
1921. Essai de classification des phlébotomes.
Archives des Instituts Pasteur de l'Afrique du Nord, 1: 279-284.

FRÓES, H. P.
1939. O problema da leishmaniose visceral e sua importância para o Estado de Sergipe.
Brasil-Médico, 53: 311-317.

HEMMING, F.
1944. The generic name of the sandfly.
Science, 100: 385.

HEMMING, F. (Editor)
1958. Official list of rejected and invalid generic names in Zoology.
London: International Trust of Zoological Nomenclature – 132 pp.

HERRER, A.
1943. Observaciones sobre la verruga en el Departamento de Cajamarca II. Observaciones entomologicos.
Revista de Medicina Experimental (Lima), 2: 354-361.

HERRER, A. & BLANCAS, F.
1959/60. Estudios sobre la enfermedad de Carrión en el valle interandino del Mantago. I: Observaciones entomológicas.
Revista de Medicina Experimental (Lima), 13: 27-45.

HERTIG, M.
1948. A new genus of bloodsucking Psychodid from Peru (Diptera, Psychodidae).
Annals of the Entomological Society of America, 41: 8-16.

LEWIS, D. J.
1973. Phlebotomidae and Psychodidae.
In *Insects and Other Arthropods of Medical Importance,* ed. K. G. V. Smith. London: British Museum (Natural History) – 561 pp.
1974. The biology of Phlebotomidae in relation to leishmaniasis.
Annual Review of Entomology, 19: 363-384.

LLANOS, Z. B.
1971. Estado actual de las enfermedades transmitidas por *Phlebotomus* en Latinoamerica.
Boletin de la Sociedad Entomologia del Peru, 6: 75-80.

LUCENA, D. T.
1960. *Flebotomus pinottii* n. sp. de Arapiraca, Alagoas, Brasil.
Revista Brasileira de Malariologia e Doenças Tropicais, 12: 75-79.

LUTZ, A., ARAUJO, H. C. de S. & da FONSECA FILHO, O.
1918. Viagem scientifica no Rio Parana e a Assunción com volta por Buenos Aires, Montevideo e Rio Grande.
Memórias do Instituto Oswaldo Cruz, 10: 104-173.

LUTZ, A. & NEIVA, A.
1912. Contribuição para o conhecimento das espécies do gênero *Phlebotomus* existentes no Brasil.
Memórias do Instituto Oswaldo Cruz, 4: 84-95.

SciELO

MANGABEIRA FILHO, O.
1941*a*. 3ª Contribuição ao estudo dos *Flebotomus. Evandromyia* n. subg. (Diptera: Psychodidae).
Memórias do Instituto Oswaldo Cruz, 36: 215-223.

MANGABEIRA FILHO, O.
1941*b*. 4ª Contribuição ao estudo dos *Flebotomus. Psychodopygus* n. subg. (Diptera: Psychodidae).
Memórias do Instituto Oswaldo Cruz, 36: 237-250.
1941*c*. 5ª Contribuição ao estudo dos *Flebotomus. Viannamyia* n. subg. (Diptera: Psychodidae).
Memórias do Instituto Oswaldo Cruz, 36: 251-262.
1942*a*. 7ª Contribuição ao estudo dos *Flebotomus* (Diptera: Psychodidae). Descrição dos machos de 24 novas espécies.
Memórias do Instituto Oswaldo Cruz, 37: 111-218.
1942*b*. 8ª Contribuição ao estudo dos *Flebotomus* (Diptera: Psychodidae). *Flebotomus (Brumptomyia) avellari* Costa Lima, 1932.
Memórias do Instituto Oswaldo Cruz, 37: 225-240.

MANGABEIRA FILHO, O. & GALINDO, P.
1944. The genus *Flebotomus* in California.
American Journal of Hygiene, 40: 182-198.

MARMOL LEON, P.
1968. *Phlebotomus* (Diptera: Psychodidae) encontrados en Zipayare, con la redescripcion de tres especies nuevas para Venezuela.
Kasmera, 3: 61-71.

MARTINS, A. V. & da SILVA, J. E.
1968. *Barrettomyia* n. subg., com a descrição de uma espécie nova e da fêmea de *Lutzomyia (Barrettomyia) costalimai* (Mangabeira, 1942).
Boletim do Museu de História Natural da Universidade Federal de Minas Gerais, Zoologia No. 3 : 15 pp.

ORTIZ, I. & SCORZA, J. V.
1963. Notas biológicas y taxonomicas sobre algunos Phlebotominae (Diptera, Psychodidae) de Rancho Grande, Venezuela.
Acta Biologica Venezuelica, 3: 341-361.

OSORNO-MESA, E., MORALES-ALARCON, A. & de OSORNO, F.
1966. Phlebotominae de Colombia (Diptera, Psychodidae). I.
Distribucion geografica de especies de *Phlebotomus* registradas con algunas anotaciones biologicas y descripcion de una nueva.
Caldasia, 10: 27-38.

OSORNO-MESA, E., MORALES-ALARCON, A., de OSORNO, F. & FERRO-VELA, C.
1972. *Phlebotominae* de Colombia (Diptera, Psychodidae) IX. Distribucion geografica de especies de *Brumptomyia* França y Parrot, 1921 y *Lutzomyia* França 1924 encontradas en Colombia S.A.
Revista de la Academia Colombiana de Ciencias Exactas, Fisicas y Naturales, 14: 45-68.

PERFIL'EV, P. P.
1966. Fauna of U.S.S.R. Dipterous insects, Volume III no. 2. Phlebotomidae. (In Russian). Moscow: Zoological Institute, Academy of Sciences of the USSR – 382 pp.
1968. (Translation of the 1966 book).
Jerusalem: Israel Program for Scientific Translations – 363 pp.

PESCE, H. & PARDO, G., L.
1943. Notes on cutaneous leishmaniasis and *Phlebotomus* in the Province of Andahuaylas, Peru.
American Journal of Hygiene, 37: 255-258.

PRATT, H. D.
1947. *Shannonomyina*, new name for *Shannonomyia* Dyar (not Alexander) (Diptera, Psychodidae).
Proceedings of the Entomological Society of Washington, 49: 86.

SciELO

PUPO, J. de A.
1923. A leishmaniose tegumentar em São Paulo.
Annaes Paulistas de Medicina e Cirurgia, **14:** 59-66.

ROHDENDORF, B. B.
1964. (The Evolution of Diptera). (In Russian).
Trudy Paleontologicheskogo Instituta, 100: 1-312.

SAMPAIO, L. F.
1951. O aparecimento, a expansão e o fim da leishmaniose no Estado de São Paulo.
Revista Brasileira de Medicina, **8:** 717-721.

SCORZA, J. V., ORTIZ, I. & RAMIREZ, M.
1967. Observaciones biologicas sobre algunos flebotomos de "Rancho Grande" (Venezuela). 1 Descripcion de un area restringida de la selva nublada y taxonomia de los *Phlebotomus* (Diptera, Psychodidae).
Acta Biologica Venezuelica, **5:** 179-200.

SHANNON, R. C.
1929. Entomological investigations in connection with Carrion's disease.
American Journal of Hygiene, **10:** 78-111.

SHATTUCK, G. C.
1936. The distribution of American leishmaniasis in relation to that of *Phlebotomus.*
American Journal of Tropical Medicine, **16:** 187-205.

SHERLOCK, I. A.
1964. Surto de calazar na zona central do Estado da Bahia.
Revista Brasileira de Malariologia e Doenças Tropicais, **16:** 157-170.

THEODOR, O.
1932. On the structure of the buccal cavity, pharynx and spermatheca in South American *Phlebotomus.*
Bulletin of Entomological Research, 23: 17-23.
1948. Classification of the Old World species of the subfamily Phlebotominae (Diptera, Psychodidae).
Bulletin of Entomological Research, 39: 85-115.
1965. On the classification of American Phlebotominae.
Journal of Medical Entomology, **2:** 171-197.

TORREALBA, J. F.
1961. Algo sobre investigaciones del Kala Azar en el Estado Guarico.
Revista Venezolana de Sanidad y Asistencia Social, **26:** 664-667.

VELASCO, J. & TRAPIDO, H.
1974. Two new phlebotomine sandflies from Bolivia, *Lutzomyia boliviana* n. sp. and *Warileya yungasi* n. sp. (Diptera: Psychodidae).
Journal of Medical Entomology, **11:** 433-436.

YOUNG, D. G. & FAIRCHILD, G. B.
1974. Studies of Phlebotomine sand flies.
Gainesville: Department of Entomology and Nematology, University of Florida – 151 pp.

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